THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

DECEMBER, 1877.

A CASE OF RABIES IN THE HORSE.

WE shall probably never know, even approximately, the number of animals which have died of Rabies or been destroyed as rabid, since the present outbreak commenced; indeed, it is very rare that cases of the disease are reported by members of the profession—probably because it is deemed to be so common as not to deserve mention. If this surmise be correct, we can only regret that such a notion should prevail. It is of the greatest advantage, nay, importance, that everything connected with this terrifying and fatal malady should be made known; and veterinarians can contribute largely—and have already done well in this direction—in adding to our knowledge of it. Much yet remains to be done, and we earnestly hope that the present opportunity will not be allowed to pass without availing ourselves of the chances it offers for observation and investigation. We know for certain that many animals have recently died from transmitted Rabies in the various counties in England where the malady has prevailed; and yet, strange to relate, no account of any cases has been published for many months. To Captain Cotton, of the 21st Hussars, stationed at Shorncliffe, and to Mr. Collins, Principal Veterinary

Surgeon, we are indebted for the following particulars relative to a case of Rabies in a mare—a charger belonging to the first-named officer.

The mare was a well-trained and very docile animal, rising nine years of age. She was kept in a stable in which were two dogs, one of which had been destroyed as "mad," after biting two soldier servants rather severely in the hands, several weeks before the mare exhibited any unusual symptoms.

On the morning of September 14th, the groom, on entering the stable, noticed that the mare was not inclined to eat her usual food; and some bran mash having been placed before her, only a small portion of it was picked up. Usually of a most gentle disposition, and much attached to the groom, she was now very peevish, snapped at him with her teeth, and was inclined to kick. Nevertheless, she was sufficiently manageable to undergo her usual amount of exercise.

The groom had previously remarked a slight wound in the skin on the posterior part of the near hind-leg, about six inches below the point of the hock; but it was not until afterwards that this wound was associated with the peculiar symptoms the mare exhibited, and its origin suspected.

On the 15th, the animal had not eaten any food, and she was in a more irritable and excited state than on the previous day. She was perspiring profusely, pawing with her fore-feet, stamping with the hind ones, champing her teeth, and throwing herself violently down in the stall, whether any one was present in the stable or not. At times she would seize a mouthful of bran, but did not attempt to swallow it; indeed, she appeared to be scarcely conscious of what she was doing, or of what was going on around her.

On the 16th the symptoms were still more urgent. As she was required for her master to ride, it being the General's inspection, the groom attempted to saddle her, but at last came to the conclusion that she was not in a fit state to be ridden in the riding-school. Captain Cotton, on being informed as to her condition, brought the regimental veterinary surgeon with him to see her. The latter, however, could not discover anything to prevent her being ridden; so with much trouble, and not without danger,

she was saddled, and Captain Cotton managed to get her into the riding-school. When brought among the other horses, she was extremely restless and violent, biting and kicking at them,—a most extraordinary circumstance, as she had previously been one of the quietest animals among horses in the regiment. In the midst of this fit of fury she suddenly threw herself down, and Captain Cotton, having disengaged himself from her, sent her to one of the infirmary loose boxes. On being offered water, she attempted to drink it, but was unable to do so, from evident difficulty in deglutition. This inability to swallow made her stamp and paw still more, as she was apparently very thirsty and anxious to drink. She rushed about the box, kicked and scraped at the litter, floor, or walls; gnashed her teeth, snapped at anything and everything—even at vacancy; and neighed loudly—almost screamed. This was in the forenoon. At 4 p.m. the symptoms were still more violent; though when offered water, the poor creature still urgently tried to swallow some, but unsuccessfully. The eyes looked wild, the pupils were widely dilated, and the conjunctivæ highly injected. At 12 p.m. the symptoms were, if possible, still more alarming and furious. On water being placed before her, the mare still tried hard to drink some, but failed; and the attempt either caused pain or the failure distress, as she sprang back from it as if afraid, though she made attempt after attempt. She occasionally rushed, with open mouth and staring eyes, towards the half-door of the box, as if to bite it; but then, as if blind, she would miss it, and the upper part of her neck would come into violent contact with it.

At 4 a.m. on the 17th, the mare staggered back after one of these rushes at the door, fell down, and died in a minute or two —apparently from nervous exhaustion.

The notes of the *post-mortem* examination are extremely meagre, and merely mention that there was an effusion (?) of lymph into the larynx and upper part of the trachea, caused by injury as described above. "Other organs apparently healthy."

Captain Cotton writes, under date October 31st, to the effect that on that day he had heard from the Colonel commanding the 21st Hussars that his daughter's toy-terrier had "gone mad,"

without having been bitten (?)—to their knowledge—by another dog. Fortunately it did not bite any one.

We would beg of our colleagues who have the opportunity, to send us reports of any instances of Rabies they may meet with, and, if possible, to ascertain, in transmitted cases, the condition and fate of the animal which inflicted the wounds. We are urgently in need of information in this direction, and also with regard to the pathological anatomy of the disease and the alterations which take place in the nervous system. The above case in the 21st Hussars offered an excellent opportunity for studying the pathology and lesions of Rabies in the equine species, and especially for a microscopical examination of the nervous centres. If any of our readers will do us the favour of forwarding the brain and spinal cord of animals which have been affected with undoubted Rabies, we shall have a careful macroscopical and microscopical examination made, and publish the results. These parts should be sent in as fresh a condition as possible, or hardened in a weak solution of chromic acid.

COLLOID CANCER OF THE UPPER AIR-PASSAGES IN A HORSE.

BY R. S. REYNOLDS, M.R.C.V.S., LIVERPOOL.

THE subject of this case was a black cart-horse, rising five years old, purchased from the breeder for town purposes on 11th December, 1873. He was put to light work immediately, and continued thereat until the latter end of February, 1874, when he had a slight attack of Sore Throat, for which he was rested for a few days. Some short time afterwards, he was suddenly attacked, whilst at work, with difficulty in respiration of so severe a character, as to render it necessary for him to leave the cart he was working in and be taken slowly to his stable. On the way, however, the carter states the horse was so bad, he called at my friend Mr. Procter's, who put in a tracheotomy tube, as he afterwards told me "just in time to save his life." In a day or two afterwards the horse was to all appearances quite well again; the

existence of tumour or laryngeal affection of any kind could not be detected. He worked with the tube until August of the same year, when it was removed, and he continued to perform his work satisfactorily until December, when he had another attack of "roaring," from which he was unfitted for work for fourteen days. He resumed work early in January, 1875, without the tube, and continued thereat till November, when suffocation was again imminent, and I put in a permanent tube, in which he worked until his death, on September 11th ultimo, with the exception of twenty-seven days in the June and July previous. About the middle of June he, although wearing the tube, was similarly affected as he had been on previous occasions: he could not trot a hundred yards, nor draw an empty cart twenty yards; and at the same time he apparently suffered from Sore Throat, difficulty in swallowing, cough, and nasal discharge. I examined the trachea, which was constricted somewhat below the lower end of the tube, but not so much as to prevent a staff an inch in diameter being easily passed—indeed, not much, if any more constricted than I found it to be on *post-mortem* examination. As I have before implied, he recovered from this attack, was put to work again on July 9th, and continued until the day of his death, September 11th. I should further remark that throughout the whole time he was in the possession of the Corporation he was subject to mild attacks of what I believed to be Flatulent Colic, but I could not at any time associate these attacks with the more severe and more rare ones affecting his breathing. The former appeared to be due to his becoming for a time a most complete "windsucker," but he was not habitually addicted to windsucking; the symptoms he presented at these periodical attacks were rigors, tympanitis, and indications of abdominal pain. I saw him at work on the 11th of September, and remarked how well he was looking: he carried himself gaily, and was in good spirits and condition, and I mentally wondered what his *post-mortem* would reveal. On being stabled that evening he was to all appearances as well as usual, ate his supper, and was right and drank at 10 p.m. At 11.15 the horse-keeper found him, as he thought, about to have one of his usual attacks of Colic, removed him to a loose box, and administered a Colic

drench—which not having its usual effect, and the symptoms becoming alarming, I was sent for. On my arrival, at 1.15, the horse was dead. I ascertained that there was extreme flatulence, profuse perspiration, surface of body cold, violent abdominal pain, and roaring so excessive he could be heard fifty yards off. From commencement to finish he was not ill for more than 2½ hours.

I was prevented from making a *post-mortem* examination except of the head and trachea, which I ordered to be sent to my surgery. I now much regret not having examined his thoracic and abdominal viscera, as it might possibly have revealed indications of an attack of Apoplexy of the mucous coat of the bowels, which can and does prove fatal in a very short time.

On examination of the trachea and head, I found the former pervious throughout, though of course it was much constricted above the insertion of the tube, and to a less degree below. In the areolar tissue around the larynx and pharynx, and extending some way down their continuations, I observed a considerable effusion of very dark-coloured blood—*certainly* an *ante-mortem* extravasation. In my further examination, I laid the head on the table with the lower jaw uppermost, and separating the larynx and pharynx from their attachments one by one, turned them back between the rami of the lower jaw; when I came across, in the situation normally occupied by the guttural pouches, a dark, firm, bloody-looking mass, which I removed as well as I was able from its attachments to the inferior surface of the sphenoid bone, and forwarded it to the Brown Institute for your examination the same evening. The tumour did not involve the velum, but must have pressed against it. I shall be glad, if you do not think the case too imperfectly recorded, for it to be published in your Journal, with such remarks thereon as may render it interesting to the readers.

[It is very much to be regretted that a careful and complete *post-mortem* examination of the horse was not made, and particularly of the lungs; as in these organs some alteration or condition might have been found to account for the attacks of suffocation described as occurring, even when the animal was wearing a tracheotomy tube. The attacks, also, of abdominal

pain testified to the presence of disease or derangement of the organs in that cavity. A careful examination of the entire body would, doubtless, have proved interesting and instructive. Mr. Duguid, who kindly examined the morbid portions sent to the Brown Institution, writes: "The tumour sent by Mr. Reynolds was one of very unusual character. It appears like a large soft blood-clot, and evidently occupied the space described in the notes of the case, a small portion of both parotid glands being attached to it. On microscopic examination, it proved to be a case of Colloid Cancer, and is a most interesting specimen."]

SAND-EATING AMONGST HORSES.

BY W. S. ADAMS, M.R.C.V.S., ROYAL ARTILLERY, REMOUNT DEPÔT, OOSSOOR, INDIA.

HAVING observed a communication in the *Veterinary Journal* for September, from Captain Russell, relating to a case of Enteritis and rupture of the stomach, in which a large quantity of sand was found in the intestines, I am induced to offer a short account of instances of "sand-eating" which have come under my notice, and trust they may be of interest to your readers.

In February of this year, a number of Walers were purchased in Madras from a recently imported batch, and forwarded to the Depôt. Owing to the long protracted drought, straw for bedding was not procurable, and the horses of this batch were bedded in Madras with sea sand.

One horse died on his way to the Depôt, from Enteritis, and a large amount of sea sand was found in the intestines; the amount was not weighed, no appliances being at hand. Shortly after their arrival, several horses were admitted into the sick lines, showing symptoms of abdominal pain, and at the same time voiding quantities of sea sand. One died; and 22·lbs. of sand (weighed when dry) were found in the colon.

Three other horses were placed under treatment for sub-acute Enteritis, and before leaving the sick lines passed respec-

tively 17½ lbs., 9½ lbs., and 3¾ lbs. The horses of this particular batch gave much anxiety for some time; they did not thrive, and from amongst them there were continually cases of Colic, Diarrhœa, and irregular and irritable state of the bowels, usually associated with the passing of sand; and within the past week, eight months since their arrival from Madras, there have been two cases of Colic, both of which passed considerable quantities of sea sand. There is no doubt as to its being *sea* sand which was voided by these horses, as in it portions of shells were observed. I consider that these horses must have licked up the sand with which they were bedded—probably on account of the salt it contained.

With regard to treatment, I found that little could be done, and that when sand was passing naturally, the less attempted the better. In all cases in which Diarrhœa was present and the fæces became fluid, the sand ceased to pass, and on the purging being checked, frequently large quantities of sand would be expelled. I avoided purgatives, but kept the bowels free by means of laxatives and soft food, and endeavoured to allay any irritability of the intestines by means of sedatives.

When stationed at Bellary, in 1871, my attention was drawn to the frequent cases of horses passing quantities of sand and gravel; and on making investigation, I found that no less than thirty-six horses of a native cavalry regiment—of which I was in veterinary medical charge—habitually licked the ground at their pickets. In this instance, also, I consider that the horses licked the ground to obtain the saline matter with which the soil in the Bellary district is impregnated.

Cases have occasionally come under my notice of horses dying from Enteritis, due to the presence of large quantities of sand or gravel, no doubt taken in wholesale from "morbid appetite." Cases which can only be traced to "morbid appetite" are, in my experience, usually met with in Australian horses; and I heard recently of a case in which an Australian, an officer's charger, died from Enteritis, and no less than 80 lbs. of sand were found in the intestines. This horse had been bedded with river sand.

GENERAL EMPHYSEMA.

BY THE SAME.

THE following case occurred in a battery of horse artillery at Secunderabad, of which I was in veterinary charge.

A powerful and somewhat restive wheel horse, when in draught, made an unnecessary jump at a small "grip," and got the off trace between his fore-legs ; on the trace being tightened, the trace hook cut him on the inside of the off fore-arm, causing a severe wound and severing the *pectoralis transversus* muscle. The horse was at once unhooked and led home—a distance of about three miles. On arrival at the sick lines, he presented an extraordinary appearance, the whole body being in a state of "Emphysema" from the poll to the croup. The emphysematous swelling was more marked on the neck, in front of the chest, and on the off quarter, and least on the near quarter. The horse was in evident pain, and was much distressed. I at once made incisions at various points—in front of the chest, behind each elbow, and at the off flank—and by gentle hand-rubbing succeeded in evacuating a large quantity of air which was superficial. This gave evident relief.

I prepared the horse for physic. There was subsequently considerable sympathetic fever. Although much of the superficial air was removed, there remained large quantities in the deep-seated tissues which could only be removed by absorption, and it was six weeks from the date of the accident before the Emphysema had entirely disappeared. The horse lost flesh considerably, and was much debilitated. I am of decided opinion that in this case there was no wound penetrating the thorax and injuring the lung tissue, but that the air found its way into the tissues by means of the wound under the fore-arm : penetrating, as it did, to the loose cellular tissue, assisted by the motion of the limb in the three-mile walk taken immediately after the accident.

THERAPEUTIC NOTES.

BY PROFESSOR WALLEY, M.R.C.V.S., EDINBURGH VETERINARY COLLEGE.

SALICYLIC ACID, as an external application in skin diseases accompanied by moisture, is invaluable. In Otorrhœa, in Acute Eczema, and in cracked heels, it is very beneficial. It is superior to carbolic or creosote dressings, in wounds accompanied by fœtor—often establishing healthy action when these agents fail. It may be employed as an ointment, 1 or 1½ to 8; or as a lotion, 1 to 12 or 20—with a little glycerine. Its value in dog practice is enhanced by its perfect innocuousness.

I have only tried it twice as an internal refrigerant, but without marked result.

MILK AS AN INJECTION IN ACUTE DYSENTERY.—For many years I have given milk to a large extent in bowel affections, accompanied by inordinate discharges. Some few months ago I was attending a valuable short-horn cow, suffering from Metritis. On the second day of the attack, Dysentery (vicarious) set in very severely; the mucous membrane of the rectum was corrugated, and extremely hot, as detected by manual exploration; temperature 107°. I ordered an injection of cold new milk in the morning; it was retained all day, and at night, on re-examination, I could detect no recent coagula of blood in the rectum, and its temperature was reduced by 3° F. From this time the cow made a rapid recovery. Opium, ipecacuanha, and camphor, with milk, were administered internally.

A FEW REMARKS RELATIVE TO THE USUAL SKIN AFFECTION OCCURRING IN INDIA, KNOWN AS "MANGE," "SURFEIT," "PRURIGO," ETC.

BY STEPHEN KNOTT, M.R.C.V.S., ROYAL ARTILLERY.

THIS is a disease which is very annoying and troublesome to our horses in India, and if not greater, is equally, a source of trouble and annoyance to the army veterinary surgeon in his

endeavours to conquer and eradicate it, as at times it will resist all treatment, and prove most unsatisfactory to cope with. In batteries of artillery and regiments of cavalry there will always be found a large percentage of horses suffering from this complaint; and in some cases, in spite of all treatment, both local and constitutional, it will still remain chronic. Moisture appears to aggravate it, and cause a greater extent of eruption; as, according to my experience, in the rains it assumes a more aggravated form. I have known it to be so bad that horses have been completely thrown out of work, being unable to carry their harness on account of the raw and inflamed state of the skin, which had an appearance resembling Scabies, with a sero-purulent secretion underneath the raised eruptive crusts. Owing to the great irritation it causes, I have frequently seen horses in the troop lines lying down on the ground and rubbing their bodies into raw patches. And this raw surface was, of course, greatly inflamed by dirt, etc., being pressed in,—added to which, there was the influence of heavy dews at night, and a scorching sun in the day, acting upon this most tormenting disease, when the sufferers were not under cover.

The parts where the disease makes its appearance may be anywhere on the body; but it has generally a preference for the shoulders and sides, roots of the mane, the sides of the face, and sometimes the flat portion of the withers. When it does appear at the roots of the mane, it causes the horse to partially destroy it, leaving the remaining portion of the mane like a hog's bristles; it consequently makes the animal appear very unsightly.

I believe the usually prevailing opinion in India is, that this disease is similar to "prickly heat" in the human subject, and that its origin is partially due to constitutional predisposition, accelerated by climatic influences. Possibly this theory may be correct. I am of opinion, however, that the affection most probably owes its origin to either of the following: to a "parasite zoophyte (although I cannot say so for certain, nor can I prove it, for I have never examined any of the eruptions, or the scales from the eruptions, by means of the microscope,—I only surmise that such may be the case); or the disease may be

analogous to *Malabar Itch*, from which the natives suffer considerably, especially the horsekeeper and grass-cutter caste. It is often to be seen on the horsekeeper's hands, between the fingers, on the legs, thighs, feet, etc. Why should not horsekeepers transmit it from themselves to the horse? For instance, if they have it on their hands, they must contaminate the grooming implements; and also when riding and taking the horses to water or exercise, as their legs and thighs are often covered with sores of *Malabar Itch*. Again, at evening stables, where the horses have their "coomblies" or blankets put on, they are then handled by the horsekeepers; and it is only natural to infer that where the hands are affected the clothing may easily be contaminated, and so cause the spread of the disease among the horses. For it is possible that the coomblies are at times changed from horses suffering from skin disease, to those that are not. The same might almost be said of the grooming implements.

Further, I have often noticed the children of horsekeepers crawling about the horse lines with patches of *Malabar Itch* over them; and who can say that they may not have been sitting on the coomblies, or rolled up in them even, before the latter have been put on the horses?

Another view of mine is that pariah dogs may produce skin disease in horses. I have often seen them about the lines, owned by horsekeepers; and in many instances the animals were covered with sores. Possibly these dogs might lie on the coomblies when these were thrown off by the horses during the night, or the dogs lie with the horses when down.

As to treatment, every veterinary surgeon has his own particular views on that point; and quite right too. The following suggestions, however—the result of actual experience—may not be considered out of place here. Before commencing to treat your patients with any remedial agents, the first thing to be done is to put the animals under cover, away from exposure to the sun's rays. If this rule is not followed, no remedies can be applied with safety to the skin; as the action of the sun and the dressing used would irritate it too much, and bring about an extremely inflamed condition of it. After placing the horses under

cover, the next precaution taken is to have them well washed with soft soap and warm water, so as to thoroughly cleanse the skin before applying any unguent or dressing. Soft soap is an excellent material for skin affections, on account of its cleansing and detergent properties; and, in order to make it more effective still, add a proper proportion of carbolic acid to it; but before adding the carbolic acid, mix glycerine with it, otherwise it will not get into solution with the soft soap, but will be found deposited at the bottom of the jar which contains it. In India soft soap is rather expensive, and not easily procurable at many stations. It is often substituted by a nut called *soap nut*, which produces a very good lather; but I doubt whether its cleansing properties are so effective as soft soap. After the washing process the animal should be well rubbed down, and when dry and clean, anointed with some skin dressing.

To start with, there are several dressings; and if one does not seem to answer effectually, after a fair trial, it ought to be changed. It must never be applied on a dirty animal—as for example, after the horse has been down all night in its dirty litter, and is possibly begrimed with cloggy dust from the floor of its stall; but, on the contrary, it ought to be washed and cleansed before being dressed again, because, if cleanliness is not observed, the parasite, if there be one, is not destroyed: it is merely fed and kept alive. Besides, should there be any tendency to inflammation of the skin, it is inflamed more by rubbing in dirt and dressing, and difficulties are increased thereby, in having to contend against and allay the irritation of the part before continuing the treatment.

Preparations of sulphur and of tar have their beneficial effects (refer to Morton's "Veterinary Pharmacy"), as well as lotions of hyposulphate of soda, carbolic acid, and several others (see Fleming's "Sanitary Science and Police," vol. ii., p. 471, where will be found numerous remedies named for Ringworm and skin affections). Hygienic measures are, of course, the most essential part of the treatment.

Diet is another item to be named. As much fresh green food as can be procured (such as lucerne, Guinea grass, etc.), is a great alterative. At one station during my stay in India, I had a very

fair-sized garden of Guinea grass, well enclosed by a bamboo fence. The Guinea grass roots were begged from different residents at the station; and as I had a plentiful supply of water, I could flow a great quantity over it whenever necessary. This proved a great luxury to my patients, and no doubt assisted in doing good. Of course, this could not be accomplished at every station in India, but only where sufficient waste water was to be had. Medicine assisted to allay irritation, by giving occasionally a mild aperient, combined with small doses of calomel, and at other times alteratives: potass. iodidi in the food, and potass. nit. sulphur, etc.

The disease in chronic cases was never cured, but only partially arrested; for when the hot weather and ensuing rains came on again, they were just as bad as ever.

Difficulties with regard to treatment were met with. Firstly, there was the climate, and exposure to the sun during the day and dews at night, whenever there was not sufficient room for them under cover. Secondly, the ground on which they lay was mud beaten down, which afterwards became dry and dusty; and when the patients lay, they naturally rolled and smothered themselves in dirt. If there were paved stables, similar to those we have at home, that difficulty would be removed.

Whenever there is not sufficient room for the horses suffering from skin disease, I am in favour of a "chupper" shed being erected, which in many cases can be done by a strong recommendation from the officer in veterinary charge. One objection is sometimes put forward—viz., that the natives might set fire to it; and another, which is in too many cases unanswerable, "Who is to pay for it?"

With reference to washing horses, horsekeepers will wash them, and afterwards leave them in the open under a burning sun to dry. The result is often fever, accompanied with congestion of the liver; or the foundation is laid for "Kumree," or partial paralysis of the hind extremities.

With regard to the opinion entertained by many in India that skin disease may not be a parasitic malady, it may be observed that the irritation which is set up by the parasite, if there be one, is productive of the prurigo and eruption; that the

effect of climate, action of the sun, etc., influences the irritation: hence the eruption.

The principal aim is to get at the disease, which doubtless in chronic cases is very much imbedded in the cutis; and continual washings and repeated applications of oil will eventually soften the skin and remove the scales. When dressings of different kinds are applied to the parts where this precaution is not adopted, the disease takes longer to cure.

In conclusion, I do not for certain say that this is a parasitic disease; but it is an idea of mine that it is just possible it may be so, and it would be very satisfactory to have the point cleared up beyond doubt.

If some of our colleagues in India, or of the juniors who are about to proceed there, would thoroughly study this disease, they would confer a great boon not only on their patients, but on the medical practitioner in that country, by imparting to him a satisfactory knowledge of the causes which contribute to its development.

The microscope should decide this point for us. It is always a most useful instrument for the veterinary practitioner to keep by him.

NOVEL SURGERY.

BY THE SAME.

A SHORT time since, an officer's groom brought to me a blackbird which was suffering from a broken leg, the femur being fractured. The poor man was very much grieved at the loss of his bird, as it was a great favourite with every one, and a grand warbler. I said to the man, "We will try to set the leg,"—and accordingly it was made immovable by putting it in a starch bandage (*i.e.*, a piece of tape soaked in starch).

The bird rested his leg for about three weeks; after that time he pecked off the bandage, and there was the leg all right. It had united properly; and ever since—now some months—it has remained to all appearance perfectly sound.

FRACTURE OF THE *OS PEDIS*.

BY WM. A. HURRELL, M.R.C.V.S., SOUTHMINSTER.

ON the 1st August last I was called in to see a cart-mare reported to be very lame, the property of R. Page, Esq., Down Hall, Bradwell.

History.—The mare, with a foal at her side, was out at grass, when she was found to be very lame. She had no shoes on any of her feet. The farrier had been sent for, but he could find nothing the matter with her foot, though he put a shoe on it. As the lameness increased, my opinion was solicited.

Symptoms.—The mare is very lame in near fore-foot; so much so that she is scarcely able to put it on the ground. She is also apparently suffering much pain, and constantly moving the limb. The appetite is bad, and the foot very hot round the coronet, as well as swollen up the leg as far as the knee. Pulse full, and the breathing accelerated.

Diagnosis.—Foot lameness.

Prognosis.—I believed that suppuration was going on, and that when the matter was let out of the foot the mare would soon be well.

Treatment.—The shoe was removed, when the foot was found to be very tender on pressure at the toe; it was well pared out, and then there was discovered a very large accumulation of pus. A free opening was made for its escape, and the wound was dressed with digestive ointment. Stimulating liniment was also applied to the coronet. Warm fomentations were ordered, as well as bran poultices. Gave Fever medicine.

August 4th.—Mare better, but still very lame, though not suffering so much pain. Continued the same treatment as before.

7th.—Mare better. On examining the foot, a portion of the sensitive sole appeared to be sloughing. Dressed the wound with zinci chlor. lotion, 1 to 16. Continued poultices, as there still appeared to be pus in the foot.

11th.—Mare a little better; removed portions of the slough from the sensitive sole. Continued the dressing.

16th.—Mare much improved. On removing portions of the slough, the toe of the *os pedis* was disclosed to view, presenting a

blackened appearance. On manipulation, I found that the pedal bone was broken, the anterior portion being loose. We could not remove the piece of bone with small forceps. Continued the same treatment, with the exception of the poultices.

25th.—Scarcely any lameness. The bone presented somewhat the same appearance; it was still very tightly fixed, being held by attachments of the laminæ. It was determined to remove it; so the opening was made larger, and with a bistoury the attachments of the laminæ to the detached portion of bone were divided, when it was removed by a strong pair of forceps. It was three and a half inches long, forming the entire anterior margin of the pedal bone; it varied in width from half an inch to an inch and a half. Continued the cleansing and dressing with zinci chlor. lotion and digestive ointment.

28th.—The mare is very little lame; the wound in the foot is doing well; very little discharge, and no offensive smell. Continued part of zinci chlor. lotion and cupri sulph.,—the latter 1 to 20.

September 3rd.—Mare doing well. No lameness; wound in the foot healing up; very little discharge. Continued the treatment.

8th.—Mare not quite so well; going rather more lame. Believe there is a slight accumulation of matter in the foot. Ordered bran poultices and digestive dressing.

11th.—Mare about the same; continued poultices and digestive dressing.

18th.—Mare better; very little discharge; the wound in the foot is horning over nicely; a little exuberant granulation in a place or two; the margins were touched with powdered hydrarg. bichlorid. Applied cupri sulph. lotion—1 to 12—with digestive ointment, and discontinued poultices.

October 1st.—Mare comparatively well; the wound is quite horned over; no lameness. Shoe to be put on, and the mare allowed exercise for a few days, and then to go to work.

20th.—Mare working well; no lameness. She is at road-work, as I thought if she worked on the land the sods might bruise the foot, the sole not having yet regained its former strength.

November 1.—Mare working well.

[Mr. Hurrell inquires how it happened that the *os pedis* became fractured, seeing that the mare was running out with a lot of other mares, all of them with foals. She had not shoes on for months. In all probability the bone was fractured during galloping, and it is not unlikely its tissue may have been abnormally brittle. We should much like to obtain the foot—hoof and contents—should the opportunity offer.]

GANGRENOUS MAMMITIS IN A MARE.

BY THE SAME.

SEPTEMBER 15th, 1877.—A chestnut mare, eight years old, belonging to G. W. Galloway, Esq., Cricksea Place.

History.—The mare had come off the marshes a week before, having had her foal running by her side. The colt was taken away from her to wean it, as it had a sore throat and was unable to suck; the mare being then in apparently good health. No doubt, some days previously the colt had been unable to withdraw the milk, and thus inflammation of the mammæ was produced. The bailiff had noticed the "bag" swollen and hard for several days, but did not attach any importance to it.

Symptoms.—Wasted appearance of the animal; inappetance; mammary glands hot, swollen, and very painful to the touch, and small quantities of thick pus could be drawn from both teats; dejected look; swollen legs, stiff gait. Respiration increased; pulse small; mucous membranes injected.

Diagnosis.—Mammitis, accompanied by Œdema, the latter being the result of debility.

Prognosis.—Very doubtful.

Treatment:—

15th.—Pulse 80, weak; respiration 32; temperature 104·3° (Fahr.). Ordered warm fomentations to the parts inflamed, and evaporating lotion; gave Fever medicine, with ext. belladonna ʒj; removed the mare to a loose box. Diet: mash, hay, small quantities of corn, etc.

16th.—Pulse 76, weak; respiration 34; temperature 105·1°. Mare much about the same; much fever; mammary glands more

enlarged: the fluid drawn from the teats like very high-coloured serum, and very hot. Continued fomentation; changed lotion for ol. camph. liniment and sol. belladonna. Gave Fever medicine with ext. belladonna 3j. Feed as before.

17th.—Pulse 78, irregular and weak; respiration 38; temperature 105·4°. Mare at times appearing to suffer great pain; mammary glands very hard and swollen; fluid from teats small in quantity and of a blood-like colour; legs much more œdematous. Gave Fever medicine, and continued frequent fomentations and liniment. Mare frequently picking over her food. Gave plenty of nourishing diet, gruel, ale, etc.

18th, morning.—Pulse 76, very weak and irregular; respiration 40; temperature 106·3°. Mare a good deal worse, breathing much quickened, thoracic and stertorous. Extremities rather cold, and still very much swollen; dejected look; extreme debility; mane easily pulled out. Continued fomentations and stimulating liniment; scarified the parts, when an immense quantity of sero-sanguineous fluid escaped. Gave ammon. carb. 3iv. *cum* gentian, zingib. and cayenne.

18th, evening.—Pulse 86; respiration 46; temperature 106·2°. Mare worse; breathing more stertorous and increased in frequency. Animal perceptibly weaker. Gave ammon. carb., etc., as in the morning. Mucous membranes very pale. Apparently sinking. Nourishing gruel, stimulants, and hand-rubbing to her legs.

19th.—Pulse 100, scarcely perceptible; respiration 42; temperature 104·3°. Mare worse; sinking fast; extreme debility; tottering gait; breathing much more laboured and abdominal; extremities cold; mucous membranes very pale. Mare has picked her food a little during the night. Sloughing of the mammæ, accompanied by a most fœtid odour, mortification having set in. Gave ammon. carb. 3iv., gentian, zingib., and cayenne, and repeated same in afternoon. Continued fomentations and liniment, but without any hope of doing good. The mare has a very anxious countenance. *Died* at 6 p.m.

Post-mortem Examination.—Abdominal viscera quite healthy with the exception of a few petechial spots in them. Liver slightly emphysematous, also sub-peritoneal Emphysema. Blood

coagulates but feebly; microscopically examined, it contains large cells, which are furnished with nuclei, and some apparently granular matter. The blood-corpuscles seem broken up and altered in shape. The mammary glands are very hard, the superior portion being quite black. The parts near the teats contain a small quantity of thick, almost inspissated pus. Heart large and flabby. Lungs healthy, but slightly congested. The mare is about three months advanced in pregnancy. The muscles are pale and rather soft. It is probable that Pyæmia took place before death.

FASHION IN THE TREATMENT OF DISEASE.

BY JOHN GERRARD, M.R.C.V.S., MARKET DEEPING.

THE subject of "bleeding" in inflammatory disorders, and the influence of fashion thereon, raised by Mr. C. Gresswell, M.R.C.V.S., of Nottingham, in the October and November numbers of a contemporary journal, is an old and very important subject; indeed, it is coeval with the birth of medicine and surgery.

Podalirius enjoys the distinction of being reputed the first of phlebotomists, and probably the most successful, from his time (B.C. 1192) to this. He having opened a vein in either arm of the King of Caria's daughter, who had been severely injured by a fall from the housetop, was rewarded by her hand after her recovery, and presented by her munificent father with the Chersonese as her dowry. Whether Mr. Gresswell may have any intention of rivalling Podalirius, and securing the hand of a fair daughter of some wealthy Lincolnshire squire, in return for saving the life of his favourite but plethoric steed by timely abstraction of blood, we are unable to conjecture; but he certainly bids fair to revive the practice which, according to his showing, has almost gone out of fashion.

It would have been well for Mr. Gresswell, before making this sweeping charge of intellectual toadyism against the profession to have examined rather more closely than he seems to have done, the premises on which such a conclusion is based.

True it is, that the practice of blood-letting and the employment of other antiphlogistics have greatly declined within the last quarter of a century; but to attribute the cause of the change to blind and unreasoning fashion is paying but a poor compliment to the intelligence of the age. But that phlebotomy has altogether disappeared as a therapeutic measure, we have only to refer to the current literature of the sister science, as well as that of our own, in order to disprove the allegation. Aitken, in his "Science and Practice of Medicine," says that "the most important and the most efficient of remedial agents for inflammation is undoubtedly *blood-letting;* while it must at the same time be remembered that it is not every case of inflammation that requires or warrants the abstraction of blood. It is a spoliative remedy, powerful for good and for evil." Dr. Watson says, "Each case requires its special study, speaks its proper language, furnishes its peculiar indications, and reads its own lessons, and we should bleed so as to secure the advantages of the remedy and to avoid its disadvantages."

Professor Williams, in his "Principles and Prac tice of Veterinary Surgery," the most systematic, scientific, and practical work on the subject in the English language, after giving a brief *résumé* of the views of both schools of therapeutics, says, "I must confess that I can neither assent to the views of the extreme antiphlogistics nor to those of the writers who condemn bleeding altogether—being quite confident that I have seen many cases of inflammatory disease cut short by a *timely abstraction of blood.*" Surely Mr. Gresswell will not try to maintain that these authorities are influenced in their reasoning or their practice by fashion, or that they are the victims of that unity which he so much decries and sighs to be delivered from, as such a *levelling* and demoralising principle. But, indeed, it is not among the grandees of medical science alone that the practice of bleeding prevails. It has a far larger hold among the practitioners of veterinary medicine than Mr. Gresswell would have us believe, unless his experience of Lincolnshire practitioners is very different from mine.

Some two years ago I was attending a farmer's team of about ten horses, ill from what is usually known as Influenza. Four

of them were suffering from *Pneumonia* of an asthenic type, with a great tendency to serous effusion into the pleural sacs. Treating them on the analeptic principle, by supporting the strength and salines, the owner was dissatisfied with their progress, and thought he would like another opinion. To this I had not the slightest objection, and accordingly a member from a large town was called in. It is wonderful the effect produced on the vulgar mind by a practitioner from a large town, especially if it should be a good distance off, and even though he should be a mere *old fogey*, of the heroic school. This worthy appeared, and his time being too precious, I was not privileged to meet him; but he condemned my treatment, although he never knew what it was, and said, "They should have been all *bled* and well blistered."

Bleeding and blistering for the Pneumonia of Influenza! I was not prepared for such a return to the antiphlogistic remedies, and thought we had escaped from such relics of barbarism; but it would seem they still linger amongst us, when even such an intelligent practitioner as Mr. Gresswell takes the field as their champion. And even from the plebeian to the peer, the idea of bleeding for inflammation in men and animals is still regarded as the orthodox doctrine, although a few may have imbibed the heterodox.

Notwithstanding the blind credulity of the public in medical matters, as indicated by their adhering to the exploded theories of the antiphlogistic school, I cannot believe that the "majority of medical practitioners and many veterinary surgeons do not have recourse to bleeding, because it is currently held to be incorrect and not fashionable." On the contrary, I believe it to be from the superior knowledge of physiological, pathological, and therapeutical laws possessed by the practitioners of medicine of the present day,—in short, that our art is more fully under the control of reason.

Diagnosis is daily becoming less and less conjectural; instead of guessing at what was probably the matter, we now, by microscope, test-tube, and other appliances, often determine with certainty what exists.

To imagine that, when an over-fed horse, after being worked

or moved a little beyond his pace, and thus thrown into a state of excitement or fever, always requires the aid of art, is an error; and it is an assumption to suppose—judging from the nature and course of uncomplicated Pneumonia in the horse—that abstraction of blood, and the use of what has long been known as sedatives, are necessary to a cure.

Observing that Mr. Gresswell courts criticism, it will be unnecessary to offer any apology for looking a little more closely at his cogitations, to see if we cannot find in them the very reason for the practice he commends, but which he condemns in others—viz., fashion or custom.

"A heavy, plethoric cart-horse, after a hard day's work, is found at night 'blowing' very hard, cold in the extremities, mucous membranes purple, and the pulse imperceptible. Bled to the amount of one gallon, gave sedatives and febrifuges, and in twelve hours he was convalescent." Heroic, but successful treatment, surely! How was it accomplished? By the timely abstraction of blood, thereby relieving the pressure on the pulmonary vessels, and the engorgement of the great veins and right side of the heart. But not so, says Mr. Gresswell; for, "the circulation thus freed, the heart by its reaction would soon have burdened the lungs again, but the sedatives—digitalis and antimony—came into play, and stayed its action." Did they? and if so, how did they do it? Here we find the effects of fashion or custom cropping out unconsciously; for it is proved beyond a doubt that antimony, in any of its forms, has no effect on the heart's action in the horse or ox, and consequently could have no effect in this case. (See "Veterinary Medicines," by Finlay Dun.) The action of digitalis is very uncertain, and scarcely determined. Indeed, it is more of a stimulant than a sedative to the heart. Burness and Mavor, in their "Specific Action of Drugs," state that "it is difficult to say what the exact physiological action of this drug is;" and the only action they noted in a colt to which it was given, was "*erection of the penis.*" So that we thus dispose of two of the factors which Mr. Gresswell considers contributed to the solution of the problem of disease, as being *nil* in their action; and there only remain the febrifuges which, unfortunately, he does not tell us the composition of.

It is highly probable that the febrifuges, if of a stimulating nature, may have contributed to the relief of the Pulmonary Apoplexy, which I conceive the case to have been; and that, if allowed a little time, they might have accomplished all that was necessary without the bleeding,—which, however, always affords relief when the symptoms of dyspnœa are very urgent. And that such was essentially the case, is further evident from the relief it afforded to the pulse, which in these instances is always indistinct, with tumultuous action of the heart.

"The amount of blood in this horse's lungs must have been excessive; and Nature," says Mr. Gresswell, "no doubt, in the first instance, by increasing the action of the heart, had done her utmost to remove the obstruction, but had failed." This sentence raises the most important question in connection with the subject,—viz., the cause of the obstruction which "Nature had ineffectually tried to remove."

The explanations of Mr. Gresswell in this matter may be regarded as having somewhat the character of "Paley's Evidences"—"raising more questions than they answer." It is clear, from this case, as also from the explanations offered for the practice he advocates, that he regards the plethoric state, or, as he says, "when the system is surcharged with blood," as *the cause* of inflammation: or, "when that excess of blood undergoes inflammatory change."

Such a state of system may, and undoubtedly does, occur, when an animal has a full diet, little exercise, and the digestive process is in perfect condition; but that it precedes all active inflammation, or is followed or can be produced by it, we take the liberty to doubt, and even disbelieve. It is a notorious fact that many animals will partake of an excessive quantity of food for a considerable time, have no exercise, and still remain in health—showing not the least tendency to inflammatory disorders. The excess of nutriment is stored up as fat among the various tissues and organs of the body.

Even in herbivora, according to Prof. Voit, and more recently confirmed by Messrs. Lawes and Gilbert, the nitrogenous or albuminous constituents of the food are probably the chief, if not the only source of fat. The unappropriated nitrogenous

elements, instead of giving rise to inflammatory diseases, are excreted by the kidneys in the shape of urea, or if retained in the system from functional inactivity of any of the excretory organs, different phenomena are observable than that known as inflammation.

Animals, however, which have been highly fed and little exercised, are certain to suffer from deterioration of their tissues by a kind of *fatty infiltration*, which renders them extremely liable to congestive and apoplectic attacks of the lungs and liver, often mistaken for inflammation, and best treated by blood-letting, regular exercise, and a reduced diet.

Entire cart-horses, in which Mr. Gresswell truly says "disease runs its course very rapidly," generally fall victims to this *fatty infiltration;* also the oil-cake-fed horse, not unfrequently after changing owners.

And how is this brought about? By a simple and certain physiological process, through which the fat is deposited within the cells of the various tissues, where it displaces and obscures the nuclei and protoplasm, but does not destroy them; and in the case of the muscular tissue seriously interferes with its proper condition and tone.

Recent observations tend to show that the stasis of inflammation is due to some alteration in the properties of the walls of the blood-vessels through which the blood passes, and not to changes in the blood itself.

Professor Lister considers that the accumulation of the red corpuscles in the inflamed part, and their adhesion to one another and to the walls of the vessels, is owing to their natural tendency to cohere together when in abnormal circumstances, such as often occur after their removal from the body; and he says that this tendency is not greater in the blood of inflamed tissues than in normal blood.

Now, Mr. Gresswell's cogitations tend to show that the primary cause of inflammation is in the blood itself, and he says that we should bleed in "plethora before the *excess* of blood undergoes inflammatory change, and also when the blood has localised itself into an active congestion or inflammation;" and even in specific fevers he recommends it "to weaken and dilute

the poison." This seems to me a most extraordinary doctrine to preach and practise in the latter part of the nineteenth century.

It opens up a very large question, however; and as the inexorable 15th is close at hand, I must forbear.

In conclusion, I may say that, notwithstanding the misty nature of Mr. Gresswell's pathological ideas, he seems to have been wonderfully successful in practice—which is after all, perhaps, "the best test of merit." It might be well for him to inquire if the six cases he relates bear out his premises, if they might not have been as successfully treated without the bleeding, and if the proportion of cures effected by the unfashionable practitioners of the present day will not compare favourably with that noted when bleeding was regarded as the *sheet-anchor* in the treatment of all diseases. He will probably find, if he examine impartially, that the principle or motive which has inaugurated or is effecting the change, is neither fashion, unity, nor the want of it, but the enlightened teachings of an advancing philosophy, which men engaged in a noble calling are unable to resist.

CONTAGIOUS PLEURO-PNEUMONIA IN HOLLAND.—Under the heading of "State Medicine," in the Dutch Budget for 1878, it is stated that, although the results attending the compulsory slaughter of cattle suffering from Pleuro-pneumonia are as yet incompletely manifest, there can be no doubt that a rigid enforcement of existing regulations will ultimately prove as successful in this disease as in the case of Rinderpest. In Friesland the systematic slaughter of all affected beasts has gradually so far reduced the evil, that at the present time there is but one infected herd in the province. Altogether, 27 suspected herds, comprising 769 head of cattle, have been slaughtered there. In South Holland the regulations could not be so strictly enforced, owing to the grant of money made for the purpose in the second half of the year being insufficient to provide for the compensation of owners whose beasts should have been killed. Only in the neighbourhood of the Rhine and south of the Meuse has the plan been strictly and thoroughly carried out; and in these parts it is stated there is not a single suspicious case left. In the first six months of the year, 62 herds, including 1149 cattle, were slaughtered in South Holland, and 19 herds, numbering 170 head of cattle, in the North. The total sum paid for compensation in six provinces for the first half of 1877, after deducting the amount received for hides and flesh sold under proper supervision, was 312,815 florins. The hides and flesh sold realized 151,495 florins.

Editorial.

THE OUTBREAK OF RABIES CANINA IN ENGLAND.

THERE does not appear to be much diminution in the panic or alarm, or the cause which gave rise to it, since the last issue of the *Veterinary Journal;* and it does not appear likely that this will take place until the public is assured that proper measures are adopted to prevent the extension of Rabies, and to protect persons from injury by rabid dogs. These panics are almost periodical, and it is only after much loss of property has been sustained, and great alarm experienced from the number of deaths reported as due to Hydrophobia, that steps are taken to mitigate the evil. No sooner has this been done than the necessary measures are relaxed or abolished, and nothing more is thought about it until the disease presses into notice again. Though the malady is always in existence in some part or parts of the country, yet there are no permanent precautionary measures in force; and even when a serious outbreak occurs, there is no uniform action adopted, but disjointed, partial, irregular, and not unfrequently ill-advised or inefficient preventive or suppressive measures, as with other contagious diseases of animals. Though there is great reason to deplore the grave consequences that have attended the epizoöty which has now been prevailing for several years, yet if the outbreak leads to the adoption of anything like effective sanitary police measures for this and similar animal contagions, the loss and alarm will not have been in vain. If it also compels attention to the value of Comparative Pathology and Veterinary Science, and to the unpardonable neglect of these in this country, much good will have been effected; as surely some attempt will be made to put them on a proper footing, and to obtain from them those important benefits which they can bestow on the community. For many years we have repeatedly had occasion to allude to this neglect; and in one of the leading articles which appeared in this Journal towards the middle of last year, we insisted on Comparative Pathology, which they are not taught, being more necessary in the education of medical men than Comparative Anatomy, which they are taught. We pointed out that in all, or nearly all, the Continental universities, there are Chairs of Comparative Pathology, which are occupied by the best veterinarians their respective countries could produce. Nothing could better illustrate the need there is for this branch of medical science being recognised in Britain, than the loose—nay, wild—writing which has appeared in the public press with regard to Rabies and Hydrophobia. It would seem that more liberties can be taken with this disease than with any other which affects man or beast; and if one may judge from what is written concerning it, but few persons of the very many who venture to air their opinions know anything of it or its literature. Some of the persons who evidently have but little faith in the knowledge of medical men, are inclined to attribute the deaths which have been put down as due to Hydrophobia, to fear, or to Tetanus. But surely the surgeons and physicians who have seen these cases, and who have also witnessed the variable effects of fear, as

well as the symptoms of Tetanus, are in a better position to diagnose Hydrophobia than laymen who have had no experience whatever in these diseases or conditions!

It cannot but be a matter for congratulation, that the urgent need which we have so many times insisted upon for the founding of Chairs of Comparative Pathology at our medical schools, has at last been recognised, and that Oxford is likely to take the lead in this matter—as is evidenced in our correspondence columns. We anticipate great benefit from this recognition; and if it brings human and veterinary medicine into closer contact and relationship than has hitherto unfortunately been the case, we shall have had ample reason to think that our anxious labour has not been in vain. The two branches of medicine are naturally so intimately related to each other, that nothing but harm can result to both when they are kept so wide apart as they always have been in this country. In other respects, we are also pleased to observe that the present serious visitation of Rabies and Hydrophobia is not an unmitigated evil, for it has drawn attention to the value of veterinary sanitary science, and has led to the appreciation of the good sound work done in this division of State medicine by members of our profession. It has been far too much the custom to keep veterinarians in the background, even in their own special department; and only too frequently not only have their labours been ignored, but they have been appropriated by others, with scant acknowledgment, or no acknowledgment at all.

In investigating Rabies, veterinarians have left little to be done by others, and especially with regard to its transmissibility, symptomatology, lesions, and prevention. This, we fear, is sometimes overlooked, and the present outbreak is no exception.

We learn that the Committee of Council of the British Medical Association have appointed a committee of inquiry to organise an investigation of the causation, pathology, and treatment of Rabies and Hydrophobia. This committee is composed exclusively of medical men: no member of our profession appears in the list, though we are informed that the aid of veterinary surgeons will be invoked if they can be of service. We do not complain of this omission; medical men, no doubt, consider themselves perfectly competent to undertake an investigation of this kind without extraneous assistance, and if veterinary science can supply any information, this will be utilized to the advantage and credit of medical science. Remembering the extremely subordinate—indeed, degrading—position our profession was induced to accept on the Cattle Plague Royal Commission in 1866, when medical men, who knew nothing whatever of the malady, formed the majority, we need not be surprised that, unless enlightened views prevail, the same position should always be allotted us. Remembering, also, the trifling value of the Report of that Commission, and also that scarcely anything was added to the knowledge of Cattle Plague we already possessed—knowledge entirely due to the labours of veterinarians—we have cause to regret that the promised investigation is not marked by more liberal and unselfish motives. No possible good can come of ignoring the existence of veterinary medicine: the time for this has passed away,—it prevailed too

long. In other countries there exists a juster appreciation of its value and benefits.

But, indeed, we have every reason to think that the day is not far distant when this branch of medicine will receive the attention and appreciation it merits in Britain, and particularly from the medical profession. Various indications lead to this belief, and more particularly those which the medical press afford. For instance, the *Medical Examiner* of November 15th, in a well-written article on "Comparative Pathology and Medicine," in alluding to the advantages the student of these possesses in investigations into pathological processes, and the benefits they may confer on human medicine, remarks: "It is in the domain of preventive medicine, however, that we have most to expect from veterinary medicine. Here the scientist is not only able to indicate the measures necessary for the suppression of disease, but can get legislative authority for enforcing them. From knowledge gained in this department we shall be able to apply the remedies necessary for the prevention of human diseases.

"Many of the grandest achievements in physiology, pathology, and therapeutics have been gained in the sphere of the veterinary physician by students and practitioners of human medicine. The more advanced position of human medical science explained this anomaly in former times. But now veterinary medicine has developed from the empirical to the scientific stage, and the veterinary profession will be expected to contribute more and more to the knowledge of our science and art. The training of the veterinary practitioner is daily becoming more comprehensive and more careful, and the fruits of this are seen in the rapid advances of veterinary science, and in the culture of those engaged in veterinary medicine and surgery. *Veterinary literature has made enormous progress during the last few years, and the most brilliant future may be predicted for it.* Now that veterinary medicine is established on a scientific basis, the time has come when the bonds which unite the students and practitioners of human and veterinary medicine should be knit more closely, and the two branches be brought into more intimate relationship. Human and veterinary medicine are progressing along the path of knowledge, but they are separated from one another. Fellow-travellers along the steep and rugged course, they should advance hand in hand, helping each other to surmount the obstacles they will have to encounter on the way. Each has much to learn of the other. Whilst the objective side of disease is sometimes studied to the greatest advantage in animals, the subjective can be investigated in man alone. It is, therefore, no less necessary for the veterinary physician to have a knowledge of disease in man, than it is advantageous for the practitioner of human medicine to study diseased processes in the lower animals."

Some attention has been given to the beneficial action of curare or woorali in the treatment of Rabies in man; and the two cases in which it was beneficially employed, the report of which in this country first appeared in the *Veterinary Journal*, lead to the hope that this intensely active agent may prove serviceable in allaying one of the most distressing symptoms in the human being. Well, even the credit of first

suggesting this medicament for the treatment of Hydrophobia cannot be withheld from us. Years ago, according to Waterton, the distinguished naturalist, the veterinary professor Sewell is reported to have asserted, in the presence of Sir Joseph Banks and a large number of scientific men, that if he chanced to be inoculated by a rabid dog, and became affected with the disease, he would not delay a moment in applying the woorali poison, confident as he was that its application would prove successful in preserving his life.

We earnestly hope that, when more is known of Comparative Pathology in this country, the value of the labours of veterinarians will be more generally recognised. In the meantime, we fear that we shall have to chronicle the prevalence of Rabies, until those sanitary measures which we were the first to indicate are inaugurated. The loss of human life from Hydrophobia threatens this year to be greater than it ever has been in England, if we are to judge from what it has already been in London. Since the beginning of the year up to November 10th, the deaths from this dread disease in the Metropolis were fifteen, while the corrected average annual number during the past ten years was only four. And this through sheer neglect of the teachings of veterinary sanitary science!

PRIZE ESSAY COMPETITION FOR INDIA.

WE have often had occasion to refer with deep regret to the absence of encouragement in promoting veterinary science, both in this country and in India. The work which has been already accomplished has been solely and entirely the result of individual effort, and whatever benefit has been derived from this has received no reward or acknowledgment in return for the toil, expense, and other sacrifices which the unfortunate enthusiasts may have made in promoting a most useful and humane branch of human knowledge and national well-being. Hence it is that labourers in the field of veterinary medicine have been few and far between, and the amount of original research and scientific work achieved all but *nil;* while what may be termed "professional literature"—in contradistinction to that which is so abundantly produced for the instruction of amateurs in animal doctoring—is meagre in the extreme. At the veterinary schools there is, of course, plenty of incentive to the acquirement of elementary knowledge, and inducement for students to join these teaching establishments. But for those who have graduated, and who possess the ability to advance their science, there is no stimulus, no inducement to work for the public benefit,—nothing whatever to afford compensation in the slightest degree for the oftentimes heavy demands which such labours exact. The veterinary profession itself is not blameless for this state of affairs. Perhaps it is the only profession in this country which withholds its countenance and encouragement from those of its own members who endeavour to promote its interests, and who "spurn delights and live laborious days" in raising it from obscurity into light. Nay, there is only too much reason to suspect that in more quarters than one such efforts are looked upon with disfavour and jealousy, and attempts made to thwart or minimise them to the lowest degree. Contrast our position with that of the sister profession, and it will at once be obvious why our progress is so slow and unsatisfactory. Until we have learned to be liberal and generous

towards those of our number who exert themselves continuously and disinterestedly for the general good, and begin to appreciate their efforts, we shall not, dare not, expect any great change for the better. He who would labour for the improvement of veterinary medicine in this country must be prepared to make large sacrifices in health and wealth, and have nothing in return but the consciousness of doing his duty. So long as we are apathetic in encouraging our own colleagues, we can scarcely hope for encouragement from external sources. On the Continent, Governments and agricultural and other societies readily and handsomely acknowledge the services of veterinarians, and offer inducements for research. Consequently, in these countries veterinary science is on a much better footing, and renders more benefit than in our own, which should certainly, looking at its immense animal wealth and the wide extent of the earth's surface it rules over, have a greater interest in promoting this science than any other country.

These remarks have been prompted by the announcement that the Principal Veterinary Surgeon in Bengal, Mr. F. F. Collins, has determined to offer prizes for essays on subjects relating to veterinary medicine in India. While we gladly accord him our full meed of praise for his excellent intentions and generous offer, we cannot help asking why he should be allowed, from the scanty pay he receives, to expend a portion of it on what is essentially a public service? Surely it must be to the direct advantage of India and the Indian Government to obtain information such as these prizes are intended to elicit, and to encourage the investigation of the diseases and accidents peculiar to the domestic animals in India. As in England, so in India: nothing has been done by Government to induce those who are most competent to promote knowledge of this kind, and therefore it is that we are so little acquainted with the maladies which are special to our great Indian possessions, and affect so many more species of animals than we have to deal with in this country. As in England, all is left to individual effort, and this receives no encouragement. How differently the French have acted in Algeria, their largest foreign possession! There the Government has conferred decorations, medals, and money awards on veterinary surgeons for essays and monographs on subjects of importance to the colony; and there can be no question as to the benefits which have been derived from this enlightened course. We have more exact information as to the diseases of animals in Algeria than we have of those in India, and some of the monographs on them might be designated classical. There can be no doubt whatever that English army veterinarians would have been as anxious and as willing, if not as competent, as their French brethren, to undertake inquiries of this kind, had there been any inducement; but for years there has been nothing to labour for, and the earnest worker felt that at the end of his service he would be no further forward than the idle or indifferent,—all were kept on the same dead level of mediocrity. Until a change is effected, we must still rely on the efforts of those who are ready to make sacrifices of themselves or their private means, or both, in furthering the public interests without expectation or hope of recognition or reward. The veterinary profession can furnish some instances of these self-denying men, and through them some progress has been effected. We trust Mr. Collins' attempt may be attended with success. It is the only satisfaction he is likely to receive, and perhaps it is the highest he would seek. The notice of prizes is issued from Simla, under date October 1877, and is in the following terms:—

"The Principal Veterinary Surgeon, Bengal army, will give two prizes—one of two hundred and one of one hundred rupees—for the two best practical and original papers upon the following subjects:—

"1. The best method of stable management of Troop Horses in India.

"2. The diseases and accidents to which Troop Horses in India are

liable, from irregularities in digestion: their intrinsic and extrinsic causes, and the best available mode of preventing them.

"The minutest details of the subjects must be based upon the recognised laws of the science of physiology.

"CONDITIONS.

"1. Competition will be open.

"2. Papers must reach the Principal Veterinary Surgeon's Office, Simla, India, before the 1st October, 1878.

"3. A sealed envelope, with the competitor's name and address enclosed, and his 'nom de plume,' or motto written upon the outside, must accompany each paper.

"4. The respective merits of the papers will be decided by two competent judges.

"5. The two prize papers to become the property of the Principal Veterinary Surgeon; the others will be returned.

"6. Should none of the papers possess sufficient merit, one or both prizes will be withheld."

GLANDERS AND FARCY IN INDIA.

THE geographical distribution of the contagious diseases of animals always possesses a peculiar interest for the comparative pathologist and veterinary sanitarian, and a knowledge of the subject is sometimes of the highest importance. We are still in some doubt as to the extent to which Glanders prevails, geographically, notwithstanding our own personal researches and inquiries; but it appears an established fact that the malady is unknown in some parts of the world—as in Australia and New Zealand; though in all probability, if once introduced there by imported diseased solipeds, it will soon make its presence widely and permanently felt: as occurred in Mexico, when the United States cavalry carried it into that country. Until quite recently, several authorities were led to believe that the malady did not exist in our Indian possessions; but there is now ample evidence to prove that it is well known there, and that it is sometimes quite as dangerous and destructive as in England. Not long ago we had to record an outbreak among the horses of one of our cavalry regiments there, which was accompanied by serious loss. To Mr. F. F. Collins, Principal Veterinary Surgeon in India, we are indebted for the annexed table, showing the mortality from this disease at various stations in the Bengal Presidency from January, 1872. In a private letter written last March, Mr. Collins announces that he had stamped out the disease among the horses of the 11th Hussars, thirteen of which had to be shot. "The disease exhibited itself in a form I never before witnessed. It generally commenced with inflammatory tumours upon the ribs, which after a few days subsided, leaving a slight swelling, which was more or less painful when pressed upon. Nothing more would be observed for weeks, when suddenly a hind-leg would swell, and irregular Farcy buds appear, or a discharge from one or both nostrils would manifest itself. From the earliest period until decided symptoms of the disease were developed, the interval varied from two to six months. I attended nearly all the *post-mortem* examinations, and with only one exception tubercular deposits were present in the lungs; in the exceptional instance I found nothing beyond similar tubercular deposits in the liver. I noticed an analogous condition to the last, some years ago, in a horse of the 5th Lancers at Aldershot, when that regiment had Glanders firmly fixed in it."

RETURN OF HORSES AND GRASS-CUTTERS' PONIES, CONNECTED WITH THE MOUNTED BRANCHES OF THE SERVICE, DIED OR DESTROYED FOR FARCY OR GLANDERS, SINCE THE FIRST OF JANUARY, IN THE BENGAL PRESIDENCY.

STATIONS.	1872.		1873.		1874.		1875.		1876.		1877.		TOTAL.		REMARKS.
	Horses.	Grass-Cutters' Ponies.	Horses.	G.-C.s' Ponies.	Horses.	G.-C.s' Ponies.	Horses.	G.-C.s' Ponies.	Horses.	G.-C.s' Ponies.	Horses.	G.-C.s' Ponies.	Horses.	G.-C.s' Ponies.	
Agra	..	..	..	..	..	..	3	2	..	..	..	..	3	2	Reported to have been introduced by grass-cutters' ponies.
Allahabad	2	..	..	..	2	..	..	..	..	..	..	..	4	..	Introduced by horse arriving off furlough.
Barrackpore	8	..	5	2	9	..	2	8	..	..	4	..	28	10	Reported to have been in the neighbourhood. Horses diseased driven about Calcutta.
Bareilly	..	..	..	..	16	10	..	..	..	..	..	..	16	10	Introduced by grass-cutters' ponies when on march from [Peshawur to Bareilly.
Benares	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Campbellpore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Cawnpore	..	..	..	..	10	..	..	..	..	..	..	..	10	..	Reported in the neighbourhood. One private horse diseased.
Dinapore	..	..	..	..	..	..	1	..	..	..	..	..	1	..	Not stated how introduced.
Ferozepore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Fort Machison	..	..	..	..	..	..	1	..	..	..	2	..	3	..	Not stated.
Fyzabad	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Jhelum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Jullundur	..	..	..	..	..	..	..	..	..	..	..	3	..	3	Reported in the city. One pony purchased in the city, two
Jutogh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Hill stations. [at Umritsur fair.
Khyragully	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Hill station.
Lucknow	..	1	..	..	5	..	5	..	..	..	..	..	10	1	Not stated.
Mean Meer	..	..	2	..	1	..	..	..	4	..	..	..	7	..	Two of these horses had been on furlough.
Meerut	9	12	7	..	9	..	12	3	4	..	..	..	41	15	A village pony destroyed on road to Delhi; had come from [Bareilly.
Mooltan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Morar	..	..	..	..	..	..	1	..	1	..	..	..	2	..	One case occurred after camp at Delhi.
Muttra	..	..	..	..	2	..	..	..	11	5	1	1	14	6	Introduced by horse from Agra, and grass-cutters' ponies.
Nowgong	..	..	..	..	..	..	1	7	..	..	..	..	1	7	In the neighbourhood. A remount from Jhung fair.
Nowshera	..	..	..	..	..	..	..	..	..	..	2	1	2	1	Glanders met with on the Grand Trunk road, and common about Peshawur. Twenty-four horses reported destroyed at Thackpal in Peshawur.
Peshawur	..	..	..	..	1	1	..	..	1	..	..	..	2	1	Very common about Peshawur.
Rawul Pindi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Saugor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Sealkote	6	..	..	..	..	..	..	..	1	1	1	..	8	1	Not stated.
Segowlie	2	..	..	..	..	..	..	..	..	..	..	..	2	..	Not stated.
Seetapore	2	..	1	..	2	..	..	..	..	..	..	..	5	..	Not stated.
Umballa	1	..	..	..	2	1	4	..	12	5	6	1	25	7	Three ponies in Sudder Bazar destroyed. The disease reported to have existed among the Dâk horses. The first case showed the disease after the camp at Delhi, in the 11th Hussars.
TOTAL Horses	30	..	15	..	59	..	30	..	34	..	16	..	184	..	
TOTAL Ponies	..	13	..	2	..	12	..	20	..	11	..	6	..	64	

SIMLA, *12th Sept.*, 1877. GRAND TOTAL . 248

DISEASES AND ACCIDENTS AMONG THE HORSES OF THE BRITISH ARMY, AT HOME AND IN BENGAL.

FOR the first time in the history of the army, we believe, we are enabled, through the courtesy of the Principal Veterinary Surgeon, to publish the number of cases of disease and accidents occurring among troop horses in the three kingdoms, during the year commencing April 1st, 1876, and terminating March 31st, 1877. Only one case of Glanders was reported during the year. Class 13, which contains the largest number of cases, is that allotted to accidents, and those special casualties to which troop horses are more particularly exposed, either from the nature of their work, or the manner in which they are located either in barracks or camp. Deducting the 299 remaining at the end of the preceding year, it will be seen that the admissions, in an effective of more than 15,000 troopers, were 7604. Of the total number, 6336 were cured, 710 relieved, 208 were deemed incurable, 146 died, and 110 were destroyed. From the evidence before us, with regard to the sanitary condition of the horses in the armies of other countries, we have reason to believe that of our own army compares most favourably.

Classes.	Remaining from last Half-yearly Return.	Admitted since.	Total.	Cured.	Relieved.	Incurable.	Died.	Destroyed.	Remaining under Treatment.	Total.
1. Fevers	10	271	281	266	6	...	4	...	5	281
2. Lungs and pleura	7	98	105	45	5	23	27	2	3	105
3. Air passages	28	761	789	731	22	13	3	3	17	789
4. Heart	...	11	11	...	...	1	10	...	...	11
5. Liver and spleen	...	4	4	3	...	...	1	...	...	4
6. Stomach, intestines, etc.	3	337	340	284	5	...	50	1	...	340
7. Kidneys and bladder	1	3	4	2	1	...	1	...	...	4
8. Specific	16	504	520	410	59	13	14	5	19	520
9. Brain, spinal cord, etc.	1	46	47	5	11	15	6	10	...	47
10. The eye	4	87	91	69	18	3	...	...	1	91
11. The skin	7	151	158	134	13	1	...	...	10	158
12. The foot	38	551	589	313	189	58	1	...	28	589
13. Various	178	4619	4797	4047	369	77	14	83	207	4797
14. Not in above	6	61	67	27	12	4	15	6	3	67
Total	299	7504	7803	6336	710	208	146	110	293	7803

Number of horses at last return, 15,061 troop; 1698 officers'.
" " present time 15,107 " 1672 "
Average price of cast horses, £18 8s. 4½d.

Mr. F. F. Collins, Principal Veterinary Surgeon in the Bengal Presidency, reports to us that the per-centage of deaths among the horses from all causes during last year in the lower circle of Bengal was 0·97, and in the upper circle 1·32. This was the lowest per-centage known for many years. Mr. Collins writes: "I have operated upon a great many horses during the past twelve months for diseased testes. There was one really frightful case,—immense thickening of the integument, with Hydrocele. I find, strange to say, that

when I perform the covered operation—owing to adhesions, etc.—on one side, and the uncovered operation on the other, the former does the best, and is soonest well. This is invariably the case, and I feel bothered to account for it."

HYDROPHOBIA FROM POST-MORTEM INOCULATION.

THE extreme infrequency of Hydrophobia resulting from *post-mortem* inoculation has given rise to the opinion that the rabific virus loses its potency with the death of the rabid animal. We have only been able to discover two well-authenticated instances in which the disease has followed accidental inoculation, produced while making an examination of the bodies of dogs which had perished from Rabies. In both cases the victims were members of the veterinary profession—one at Copenhagen, the other in Germany. We confess to a certain amount of uneasiness we experienced not long ago, when, after making a careful autopsy of a dog which had died of the "dumb" form of Rabies, and the carcase of which was yet warm when the examination was commenced, we discovered a fresh wound at the root of the nail of one of our fingers—these two cases being vividly brought to our recollection on looking at the abrasion. It is impossible to make a proper examination of a dog without soiling the hands (unless they are protected by gloves), and in disarticulating the lower jaw for the examination of the pharynx and larynx, they are generally covered with saliva.

That the malady may be transmitted by the virus from a dead animal, has quite recently received another illustration in the case of M. Moreau, a veterinary surgeon of La Capelle, Aisne, France. In last July, M. Moreau was sent for to Lerzy, to examine the body of a dog which was supposed to have been affected with Rabies; and he did so, forgetting that he had a slight abrasion on one of his hands. In the last week of October he began to exhibit the early symptoms of Hydrophobia, which he soon recognised. Doctor Mennesson attended him during the course of the disease, but no remedies or appliances afforded relief. The unfortunate man retained consciousness until the last, and his self-possession never deserted him. He implored his attendants not to inspire his breath, and shortly before he died he bade farewell to his wife and child.

Such an occurrence is a warning to veterinary surgeons who may have to examine the bodies of rabid or suspected animals, and every precaution should be adopted to prevent accidents.

FURTHER NOTES OF EXPERIMENTS AT THE BROWN INSTITUTION ON THE COMMUNICATION OF FOOT-AND-MOUTH DISEASE FROM DISEASED TO HEALTHY ANIMALS.

BY W. DUGUID, M.R.C.V.S., VETERINARY SURGEON TO THE INSTITUTION.

IN a report already published in the *Journal of the Royal Agricultural Society*,* Dr. Sanderson gave an account of some preliminary experiments on Foot-and-mouth Disease, which appeared to show that under certain circumstances its communication by mediate contagion is more difficult than is usually supposed. In the experiments in question the infecting material was obtained at Deptford, either from live animals or (in one case) from an animal just slaughtered. In all these cases the appearances of the disease

* Already referred to in the *Veterinary Journal.*

were so characteristic that, although nothing was known of the previous history of the cases, no doubt could be entertained of their nature.

Opportunities have since offered themselves for repeating the most important of these observations, particularly those relating to the infecting power of the discharge from the mouth. For this purpose material was obtained, not from infected cattle just imported from the Continent, but from animals in the Metropolitan Cattle Market, reported by the inspector as affected with Foot-and-mouth Disease.

As before, three of the experimental animals at the Brown Institution were fed, February 1st, 1877, with hay which was more or less soaked with the discharge from the mouths of the diseased animals. Subsequently, March 22nd, a fourth animal was treated in a similar manner. All of these acquired Foot-and-mouth Disease—the time of incubation in the several cases being thirty-six hours, two days, two days, and three days, the first indication of the disease being afforded by the increase of bodily temperature. In each case the rise of temperature was followed after one day by the first appearance of the mouth eruption, which, twenty-four hours later, had assumed the vesicular form.

The following table exhibits the progress and duration of the disease :—

Number of Animal.	Temperature.			Eruption.	
	First Rise.	Maximum Reached.	Restoration to Normal.	First Appearance.	Full Development.
I.	48 hours	4th day	7th day	3rd day	4th day
II.	48 ,,	4th ,,	7th ,,	3rd ,,	4th ,,
III.	3rd day	5th ,,	8th ,,	4th ,,	5th ,,
IV.	36 hours	4th ,,	6th ,,	3rd ,,	4th ,,

The times stated in the table are reckoned from the day on which the animals were fed on the soaked hay.

The range of temperature was as follows :—

Number of Animal.	Normal.	First Rise.	Maximum.
	Deg.	Deg.	Deg.
I.	101·99	102·5	104·8
II.	101·99	102·8	105·2
III.	102·0	103·1	105·6
IV.	101·55	102·2	104·5

The restoration of the temperature to the normal standard might be evidently taken in this disease as a good sign of convalescence ; for although at this period the scars on the mucous membranes were very obvious, the animals had already begun to feed and ruminate naturally.

On the sixth day of the disease, in the animal last experimented on, hay soaked with discharge collected from the mouth was given to two other healthy animals (the two three-year-olds), without any effect. It is interesting to notice that, although the stableman who was employed in attending on the diseased animals had charge at the same time of four healthy ones, none of them were affected.

In order to obtain information as to the risk of communication of Foot-and-mouth Disease by litter removed from infected sheds, the bullock No. 4 was littered for eight days (*i.e.* the whole time of illness) with the straw removed twice a day from Nos. 1, 2, and 3, but it did not show any signs of infection. The promptitude with which the same animal was attacked several weeks

after, when fed with soaked hay, proved that this immunity was not dependent on insusceptibility. Finally, the two remaining animals not used in previous experiments were littered in a similar manner with the straw removed from No. 4 during the whole time of its illness, but again without effect.

CONTAGIOUS PLEURO-PNEUMONIA OF CATTLE.

IN the last number of the *Veterinary Journal*, we gave the report of a sub-committee of the Dublin Sanitary Association, in which the conclusion was arrived at that the flesh of cattle suffering from Contagious Pleuro-pneumonia should not be used as human food. Another report, by Drs. Macnamara, MacAlister, and Reynolds—all eminent members of the medical profession in Ireland—has been prepared by direction of the Committee of the Irish Cattle Trade Defence Association. From the subjoined portion of this report, it will be seen that the conclusions of the Committee are rather opposed to those of the Sanitary Association. We only quote the sections relating to the use of the flesh as food :—

"THE EFFECTS PRODUCED ON MAN AND HEALTHY ANIMALS BY THE CONSUMPTION OF THE FLESH OF CATTLE AFFECTED WITH PLEURO-PNEUMONIA.—On carnivora in the Zoological Gardens the meat has produced no perceptible effects, and there is no case on record wherein the flesh of cattle slaughtered while suffering from Pleuro-pneumonia, in any stage, has ever been proved to give rise to disease in man. Reynal states that the flesh of animals which have suffered from this disease has been in daily use in Paris for the past twenty years without any appreciable results. Loiset states that, during nineteen years, the flesh of 18,000 diseased animals has been used as food in Lille, and that during that time there were no appreciable alterations in the death rate, nor any unusual accessions of disease.* Mr. Gamgee† states that, in 1862, more than one-fifth of the meat consumed in Edinburgh was that of diseased cattle, and yet that year was not one of unusual mortality. Dr. Greenhow, in the report sent in by him to the President of the Board of Health, in 1857, states,—'I have been unable to ascertain that eating the flesh of animals that have suffered from Pulmonary Murrain produces any injurious consequences on human health' (p. 50). Dr. Druitt, of London (author of 'A System of Surgery'), states that he 'never saw any case of illness arise from eating the meat of diseased animals.' Lévy, in his 'Traité d'Hygiène,' quotes instances of the consumption of similarly diseased cattle on a large scale, with no injurious effect (vol. ii., p. 672) ; and Coze, in the 'Memoirs of the Agricultural Society of Paris' (vol. xx.), gives similar instances of the wholesale consumption of diseased flesh in Strassburg. Huzard and Frank might be quoted also in the same connection.

"Mr. Fleming, in his work on 'Veterinary Sanitary Science,' before quoted, says, in speaking of Pleuro-pneumonia : 'Since the malady has been recognised, it may safely be asserted that the flesh of millions of diseased animals has been consumed as food in every part of the world, and yet there is not, to my knowledge, a single instance of any accident attending or following its use.'‡

"Mr. Gamgee, in an article which he wrote to denounce the sale or use of diseased meat of any kind, admits 'that if a fat bullock or other well-conditioned animal be taken with the disease, it should be slaughtered at once,

* Reynal, "Traité de la Police Sanitaire." Paris, 1873.

† *Edinburgh Veterinary Review*, 1863. A writer in the *Scottish Farmer*, Nov. 19th, 1862, says that one-fourth of the total stock sold in London was diseased in 1862.

‡ Page 443.

and the flesh allowed to be sold at a reduced price.'* 'The absence of evidence is enough to show that immediate ill-effects do not follow the consumption of this meat. Indeed, it is certain that meat of this kind is consumed on so large a scale, that if the meat had been immediately hurtful the consequent mischief could not have escaped observation.'† To this statement of Mr. Gamgee's we would add, that not only have no 'immediate ill effects' followed the consumption of pleuro-pneumonic cattle, but that there is not on record a single case in which *remote* effects have been traced to its use.

"The only statements which have ever been brought forward in support of the injurious effects of the flesh of animals which have been affected with Pleuro-pneumonia are the two following :—

"(A.) In Dr. Livingstone's 'Missionary Travels in South Africa,' 1851, p. 101, he speaks of a disease which affects *horses* and cattle, and which he names Peri-pneumonia, or the 'Horse Plague.' He says, 'The disease passing under the term of Horse Sickness (*Peri-pneumonia*) exists with such virulence over nearly seven degrees of latitude, that no precaution would be sufficient to save these animals. The horse is so liable to this disease, that only by great care in stabling can he be kept anywhere between 20° and 27° S.' 'Cattle, too, are subject to it, but only at intervals of a few, sometimes many, years.' 'When the flesh of animals that have died of this disease is eaten, it causes a malignant carbuncle, which, when it appears over any organ, proves rapidly fatal. This disease attacks wild animals, too ; great numbers of gnus and zebras perish from the same cause.'

"As Pleuro-pneumonia never affects horses,‡ it is obvious that this disease referred to by Livingstone is not the disease in question ; and the only symptom which he gives—namely, frothing at the mouth and nostrils §—characteristic of some forms of the anthracoid disease (a disease widely differing from Pleuro-pneumonia), common in horses and cattle, whose flesh is known to produce the symptoms referred to ; and Fleming, in his work above quoted, regards the African disease as Anthrax.

"Further, Dr. Parkes says : 'I have been informed, on most excellent authority, that the Kaffirs ate their cattle when destroyed by the epidemic lung disease which prevailed at the Cape some years ago, without injury. Both my informants—Staff-Surgeon Nicolson and Assistant-Surgeon Ffrench—made very careful inquiries on this point.'‖ Notwithstanding this clear evidence, even so eminent a man as the late Dr. Parkes was materially influenced, as he admits, by Dr. Livingstone's statements. Had he known, as we do now, that the disease referred to by Livingstone was not Pleuro-pneumonia, there can be little doubt that the direct evidence of his own officers would have had with him its proper weight.

"(B.) In the third detailed report of the Registrar-General for Scotland (1867), an attempt is made, based solely upon the Livingstone fallacy above quoted, to connect a supposed increase of frequency of deaths from Anthrax with the advent of Pleuro-pneumonia. While the Registrar admits that Scotland shows no similar statistical evidence, he quotes figures from the English Registrar to show that the frequency of deaths from Anthrax, in

* *Edinburgh Veterinary Review*, 1862, p. 309.

† *Ibid.* 1863, p. 598.

‡ "The ox tribe alone is subject to the disease."—Gamgee, *Edinburgh Veterinary Review*, 1862, p. 308. "The disease does not extend to other species."—*Fleming*, vol. i., p. 408.

§ "Great numbers also of zebras are found dead with masses of foam at their nostrils, exactly as occurs in the common horse sickness. The production of the malignant carbuncle by the flesh when eaten is another proof of the disease of the tame and wild being identical."—*Livingstone*, op. cit., p. 136.

‖ Dr. Parkes' "Manual of Practical Hygiene," last edition, p. 199.

England, had, within four years, risen from an average of 5·5 to 13 per million of the population, and supposes that, as Dr. Livingstone had found carbuncles to arise from the disease described by him, so this increase in England is due to a similar cause.

"On examining the returns made by the Scottish Registrar-General, the following results appear :—

Year.	Deaths from Anthrax.	Year.	Deaths from Anthrax.
1855 . . .	20	1862 . . .	19
1856 . . .	18	1863 . . .	20
1857 . . .	18	1866 . . .	24
1858 . . .	16	1870 . . .	25
1859 . . .	21	1871 . . .	28
1861 . . .	20	1872 . . .	23

"On comparing these statistics with the relative populations of England and Scotland, the obvious result is, that while, according to Mr. Gamgee and others, the flesh of pleuro-pneumonic cattle was consumed on a large scale in Scotland during these years, yet the average mortality from Anthrax was only in the proportion of seven to the million of the population—about one-half of the English rate of mortality.

"In the year 1872 Pleuro-pneumonia existed in most of the counties of Scotland, yet reference to the table above will show how few were the cases of Anthrax. In 1876, when it existed in twenty-four Scottish counties, and when 404 fresh outbreaks were reported in Scotland alone, the total number of deaths from all cellulo-cutaneous affections, including Anthrax, Erysipelas, and other allied diseases, in the eight large towns in Scotland, was forty-five. In 1874 the disease reached a maximum—the number of cases of Pleuro-pneumonia exceeding that of any other year—yet the corresponding number of deaths from similar diseases was but thirty-three ! In 1875 there were but four deaths from Anthrax in the eight large towns. Thus, the deaths from Anthrax are not in excess, since 1866, of the former average, although we have it on the authority of the Report of the Select Committee of the House of Commons, that Pleuro-pneumonia has been worse, among cattle, since that time than before.

"From all these considerations the following conclusions are warrantable :—

"1. That the consumption of the flesh of cattle, slaughtered in early stages of Pleuro-pneumonia, is perfectly harmless, and the destruction of such meat is a wasteful expenditure of a material which is capable of supplying a perfectly wholesome animal food.

"2. That the cases adduced in evidence of the supposed injurious properties of such meat are of no weight, as those contained in the first statement did not refer to the disease in point, and those in the second are based upon a pure hypothesis, which the quoted statistics overthrow.

"It must also be borne in mind that in this case apposite negative evidence is really the strongest positive evidence ; for while we have proved that meat of the kind referred to has been hitherto largely used in this and other countries, and also that the attention of scientific medical men has been, for many years, directed to the observation of the effect, if any, resulting from its use, the fact that in not one case has disease been traced to the consumption of the flesh of a pleuro-pneumonic animal is really a point of the most significant and conclusive positive value as evidence. This is more especially the case as, in such diseases as Milzbrand, we have precise and positive information of the ill effects of the flesh ; and in the case of the consumption of the decomposed flesh of slaughtered healthy cattle we are also fully in possession of the facts relating to the deleterious effects of such meat. It has been argued that impure water has

been long used by many communities, without the production, in some persons, of injurious results; and that no scientific person would be found hardy enough to advocate on such grounds the use of such water—and that such is the condition of this question. But the cases are not parallel, because disease *has been* frequently traced with certainty to the use of impure water, which is not the fact with regard to pleuro-pneumonic meat.

"It should also be remembered that, in deciding an important practical point like this, speculative opinions are perfectly worthless, and that positive evidence of cases, such as we have in the instances of Trichinism, Anthrax, or putrid meat, is alone of any value.

"The remarks made above also apply to the fresh and unchanged meat of animals which have been slaughtered in the earlier period of the second stage of the disease, as the negative evidence on this point is as strong as in the case of the meat of animals in the first stage. But we are not prepared to advocate the use of the flesh of animals markedly reduced in condition.

"It would appear, then, that the opinions of some sanitarians on the subject, and of many medical men who have not had time to specially investigate this important question, are in part founded upon the Livingstone cases and the hypothesis of the Scotch Registrar-General, of both which we have completely disposed; and in part on inferences hastily drawn from experience of the well-known ill effects which attend the consumption of the meat of animals affected with Anthrax, Milzbrand, etc.—diseases which are essentially different from Pleuro-pneumonia in their nature and effects upon the animal tissues. Notwithstanding the fact that these inferences have no foundation in common experience or scientific investigation, they have been acted upon as if their truth had been established, and have been accepted by the popular mind, doubtless, because they are in accord with the natural feeling of dislike to contact of any kind with diseased animals, and of aversion to the consumption of their flesh.

"NUTRITIVE VALUE AND QUALITY OF THE MEAT OF PLEURO-PNEUMONIC CATTLE.—We have now to consider another branch of our subject: namely, whether or not the meat of animals which have suffered from Pleuro-pneumonia is affected, in point of nutritive value or of quality.

"It is admitted, as we have already pointed out, that the meat, even in a somewhat advanced stage of the lung disease, is indistinguishable from the flesh of healthy animals, and is often of first-rate quality.* But appearance alone is not a safe criterion of nutritive value or quality; hence appeal must be made to other criteria.†

"In the absence of direct comparative experiments on the lower animals, the important points in determining nutritive value are chemical composition and digestibility. It is admitted that the chemical composition of the flesh in Pleuro-pneumonia has not been found to differ in any material respect from that of a healthy animal,—that is to say, its composition falls within the natural and healthy range of variation established by the following analysis of lean beef on the one hand and fat beef on the other:—

Composition of 100 parts of	Lean Beef.	Fat Beef.
Fat	3·27	30·10
Muscular tissue	20·10	14·52
Mineral compounds	5·25	4·44
Water	71·38	50·94
	100·00	100·00

* See Mr. Fisher's statement, referred to in Dr. Greenhow's Official Report to the Board of Health.

† Dr. Pavy's "Treatise on Food and Dietetics," p. 146.

"Moreover, we are not aware that it has been even suggested that it is less easy of digestion, and we have heen unable to discover any facts which would lead to that conclusion. There is, therefore, no reason to believe that the fresh and unchanged meat of cattle which have suffered from even advanced Pleuro-pneumonia is less nutritive than that of healthy animals.

"As regards quality, however, there is a difference; and the evidence for this is that the meat of animals slaughtered in the *advanced* stage of Pleuro-pneumonia does not keep as well as that of healthy animals. The reason for this obviously is that there is an increase in the proportion of highly carbonized and changeable products in the tissues, consequent on the impaired action of a portion of the eliminating apparatus. But it must be remembered that the products referred to are readily burned into carbonic acid and water, and are present to a greater or lesser extent in the meat of all slaughtered animals. One of the best modes of dealing with a case in which there is reason to expect the proportion to rise and to affect the keeping quality of the meat, as in the case before us, is to exercise greater care than ordinary in bleeding the animal. It is not necessary to adopt this precaution for the protection of the health of the consumer, for, as we have already shown, no injury has resulted from the consumption of the fresh and unchanged meat of animals slaughtered in any stage of Pleuro-pneumonia; but it is desirable for economic reasons, chiefly affecting the vendor, because we cannot too strongly condemn the practice of selling meat in a putrescent condition.

"It is certain, as one of us has stated,* that the use of the seriously tainted or putrescent meat of healthy and diseased animals alike is attended with danger; and there can be little doubt that effects attributed to the virus of one or other of the diseases to which cattle are liable have frequently been due to a state of incipient decomposition of the food consumed. We may also quote, on this point, the weighty words of Mr. Simon, the Medical Officer of the Privy Council, who, in commenting on the subject, says,†—'Sufficient care has not, in my opinion, been taken to separate two important questions—the question of meat being rendered *unwholesome by decomposition*, and the question of meat being rendered *unwholesome by disease*.' This statement, which has reference to the meat of healthy animals, and of those slaughtered while suffering from *any* disease, is not less true in 1877 than at the time it was written.

"It is true that there are some who prefer tainted to fresh and wholesome meat, and who seem to be protected from the consequences of eating it, partly by habit, partly by the culinary art, and in part by a species of dietetic disinfection almost unconsciously practised by persons of epicurean tastes. But, these cases notwithstanding, there is no doubt that the general statement just made is true.

"It follows, then, from the foregoing, that the *fresh* and *unchanged* meat of animals slaughtered during an attack of Pleuro-pneumonia may be safely consumed; and that such meat is not sensibly less in nutritive value than that of other animals unaffected by any disease, but that it is of lower quality, owing to its greater tendency to undergo change,—a tendency, however, which may be diminished considerably by the means we have pointed out.

"In conclusion, we must repeat that we have approached the consideration of this question deeply impressed with its importance. Not only is it a

* See "Manual of Public Health for Ireland," p. 194. See, also, Christison "On Poisons," p. 635; and Taylor's "Medical Jurisprudence" (1865), p. 281.

† Page 31 of "Fifth Report of the Medical Officer of the Privy Council."

matter of serious moment from a hygienic point of view, but grave economic considerations are also involved in its correct solution.

"It surely requires no argument to prove that the unproductive destruction of large quantities of animal food can be attended with but one result—a considerable rise in the price of meat, which must be paid by the consumer whose means enable him to meet the enhanced cost, and a complete deprivation of a very important article of diet on the part of those whose means render them unable to meet this increased expenditure. Nor is this all. Should, unfortunately, the disease become wide-spread, and should the fresh and unchanged flesh of pleuro-pneumonic beasts be condemned as an article of human food, a very considerable rise must take place in our rates. The owners of affected cattle, who have reported them to the authorities by whose orders they have been destroyed, must, to a certain extent, be recompensed for their loss, whilst the public can receive no return by the sale of the carcase, and it must be the tax-payer who will have to bear all this expense. Of course, if the view happened to be correct that such food is unsuited for human consumption, we could only submit; but as it is incorrect, not only incapable of proof, but absolutely contrary to all recorded experience on the subject, a prodigious expenditure of money would be incurred by the destruction of such food, not only without any advantage, but at a positive and most serious disadvantage. Thus it is that both rich and poor are deeply interested in the correct solution of the question submitted by you for our consideration."

OPENING OF THE EDINBURGH VETERINARY COLLEGE.

THE winter session of the Edinburgh Veterinary College was opened in the Council Chambers on Oct. 24th. There was a good attendance of students and others. Bailie Cranston occupied the chair; and amongst others present were—Councillors Macknight, Turnbull, Landale, and Macdougald; Mr. Mylne, Niddry Mains, etc.

The CLERK (Mr. Harris) read letters of apology from Professor Balfour, Miss Dick, Captain Tod of Howden, and Mr. F. N. Menzies.

After a few introductory remarks by the CHAIRMAN,

Dr. AITKEN delivered the opening address. At the outset he paid a tribute of gratitude and respect to the founder of the school. He said there were few names in the annals of veterinary science better known than that of the late Professor Dick. It was now many years since Professor Dick came to Edinburgh and practised in the profession in which he became so celebrated a master. He saw much that was unsatisfactory in the status and character of the veterinary surgeons of his day. He saw a great part of the treatment of the diseases of the lower animals in the hands of men who knew little or nothing of the principles of the art they practised, and who had received no special or methodical training, but depended for their skill upon a certain amount of experience of one kind or another, and often were profoundly ignorant of the anatomical structure and physiological character of the animals they treated. He had received a good education in his profession, and by shrewd observation and unremitting practice had much increased his knowledge, and burned with the desire to spread abroad the truth he had acquired. After much trouble and persevering effort, he succeeded in founding, in the year 1823, the veterinary college which bore his name; and under his able management it soon rose to fame and public importance. For upwards of fifty years he

carried on his course of instruction, adding to the completeness and efficiency of the school as occasion offered, and sending out yearly numbers of trained practitioners to all parts of the world. Many of these had now attained to positions of great eminence, and two of them—Professor Smith of Toronto and Professor M'Eachran of Montreal—were at the head of their profession in their respective countries, and had founded colleges in the land of their adoption which were the best on the American continent. Upwards of 150 graduates had been already sent out from the College of Toronto alone. The late Professor Dick determined that the school which his energy had created and his talents made famous should live after him; and as he had devoted the greater part of his life to it, he also bequeathed to it, at his death in 1866, the greater part of his fortune. Since then the College had seen many changes, and had experienced both the smiles and the frowns of fortune; and not very long ago there was a time when many thought that the glory had departed from it, and that its demise was near. He hoped it was a cause of gratification to those who entertained such gloomy forebodings to know that their fears were groundless, and that the Old Veterinary College was now in a very prosperous condition, and in a higher state of efficiency than it had ever been before. With regard to the New Veterinary College which was opening up in Edinburgh, he said he was sure they could wish it much success, and all the prosperity which it deserved. The successes which had been achieved by the students of their own College had been of late years very great. Not only had they to chronicle cases of altogether exceptional merit in a few, but, what was still more gratifying, a high average standard of excellence among the mass of the students. They had also had their failures. There was one notable cause of these which had recently assumed such proportions as to demand some means of prevention—viz., a not very laudable desire manifested by some students to present themselves for examinations before they were really fit to pass them. They reasoned that, as examinations were to some extent a lottery, there was just a chance that they might have the good luck to be examined on some of the few subjects they knew well, and so manage to scramble through. If they succeeded, they had the discomfort of knowing that they had attained an honour which they had not deserved. If they failed, they not only lost prestige with their fellows, but, what was far worse, they lost it with themselves,—they lost in self-respect, and they lost confidence in their own abilities. This was an evil from which students ought to be preserved, and the cure for it was very simple—viz., to make it obligatory on students not to go up for examination till they had satisfied their teachers that they were likely to succeed. The amount of education required by those who would qualify for the degree of M.R.C.V.S. was very considerable, and in that respect a good change had been effected in recent years. A veterinary surgeon must now be a man of superior education. Not very long ago this was not the case, as the old horse doctor might have united much skill in practice with great ignorance of the theory on which his practice rested. The tendency had lately been to give more than due importance to merely theoretical knowledge; and it was only now that practical education was having that amount of attention paid to it which it deserved. Anatomy, medicine, surgery, pathology, physiology, chemistry, and pharmacy were all now taught practically. The tendency was now towards practical instruction, and it would be some time before the proper balance was struck between theoretical and practical teaching. But there was one thing certain: that as practical instruction increased the whole period of study must be proportionally lengthened. It was only last year that the course of study for the degree of M.R.C.V.S. was increased from two years to three; and he felt sure that ere long another year would have to be added to the course, for not only would the subjects of a veterinary surgeon's education become more

numerous, but a much more intimate and thorough acquaintance with them would be demanded than it was possible to acquire in three years. When they considered that four years were now found barely sufficient to enable a medical student to master the principles of medicine and surgery, and acquire sufficient experience to treat the diseases of the human subject, it seemed somewhat unreasonable that a less period should be considered necessary for the education of those who were to perform a similar office to the lower animals, though the course of study was nearly the same in each. It might be urged that the term of study and the thoroughness of it should be greater in the one case than in the other, in proportion as the life of a man is more precious than that of a horse. But the question before any medical man was not the relative value of the lives of the patients he had to treat; it was how he should best combat with disease. Where cure was practicable, there was no difference in the amount of care and skill required by veterinary and ordinary physicians. When they considered how much there was in common between the diseases of men and the lower animals, it seemed much to be desired that veterinary surgeons should, by their education and training, be on a par with other medical men, and be in a position to co-operate with them in the investigation of many common forms of disease that were very imperfectly understood. How little, for example, did we know as yet regarding the etiology of many infectious diseases! Our cattle were periodically devastated by plagues—Pleuro-pneumonia, Rinderpest, Foot-and-mouth Disease, and the like; and we ourselves were subject to epidemics of Small-pox, Cholera, Typhoid, and zymotic diseases generally. There was here a wide field of research in which well-trained veterinary surgeons might work in harmony with physicians, and, from the greater amount of liberty which they naturally were able to exercise with their patients, might be able to add much to our medical knowledge, and render signal service to the cause of the amelioration of human suffering and the prevention of human disease. Referring to the increased attention now paid by the medical profession to the subject of hygiene and sanitation, the lecturer remarked that what was now most wanted was that the masses should be taught the elementary laws of health. Pointing out the deplorable ignorance which prevails as to the ventilation of human dwellings, he said that the same thing was apparent in the keeping of the lower animals. Which of them, he asked, had ever seen a stable or a byre that was properly heated and ventilated? We spoke of the smell of a stable and the smell of a byre as if it were a necessary part of them, and were not due entirely to a want of cleanliness. The prevention of disease was a far more important branch of a physician's duty than the cure of it. That prevention was better than cure had passed into a proverb; unfortunately it was often apt to be remembered when it was too late. It might be said that, while it was a physician's interest to cure disease, it was not his interest to prevent it, and this might account to some extent for the greater attention that had hitherto been given to the cure rather than the prevention of disease. If that were so, it might then be well worth our while to consider whether we should not take a leaf out of the book of that wonderful people the Chinese, who paid their physicians as long as they were well, but stopped payment as soon as they became ill and needed curative interference of the physician. In conclusion, the lecturer offered some practical advice to the assembled students.

Mr. MYLNE, Niddry Mains, said he had listened with much pleasure to Dr. Aitken's address. He had always taken a great interest in the College, and he wished every success to it.

Councillor MACKNIGHT also expressed the satisfaction with which he had listened to the address, and dwelt on the importance of a general scientific education being brought to bear on the subject of the physiology of the horse.

He had been long acquainted with the late Professor Dick, and had always taken the deepest interest in the welfare of the College.

Principal WALLEY, in adverting to some of the points alluded to by Dr. Aitken, mentioned that great improvements had taken place in the system of education, which he had no doubt would prove beneficial. To show the interest that was being taken in the College by persons out of doors, he might mention that Councillor Waldie, Leith, had intimated his intention to award a prize for a paper on the horse, and another gentleman had offered a prize for the best paper on "Parasites on Domestic Animals."

The CHAIRMAN congratulated the Principal, professors, and students on the excellent prospects for the coming session, which he had no doubt would be a most successful one. The numbers were larger than previously, and their professors, in regard to ability, were not behind those of any other college in this country.

On the motion of Councillor LANDALE, a vote of thanks was given to the chairman, and the proceedings terminated.

OPENING OF THE NEW VETERINARY COLLEGE, EDINBURGH.

THE opening address of the session of the New Veterinary College, Gayfield Square, was given in the College on Oct. 24th, by Principal Williams. The chair was occupied by Mr. Greaves, Manchester; and on the platform were Colonel Gillon, of Wallhouse, Dr. Stevenson Macadam, Dr. Young, Mr. Johnston, Dr. Dycer, Mr. Macgregor, S.S.C.; Dr. Roberts, Captain Wilson, 90th Regiment; Mr. Richardson, Mr. Grainger, Army Veterinary Department; Mr. Finlay, Inniskilling Dragoons, etc. Letters of apology were read from the following gentlemen among others: Sir James Gardiner Baird, Sir John Don Wauchope, Sir Frederick Fitzwygram, Captain Tod, of Howden, Mr. F. N. Menzies, Secretary of the Highland and Agricultural Society; Dr. Zieglier, and Dr. Smith, Great King Street. A communication was read from old pupils, enclosing a sum of money to Principal Williams, with which to purchase a medal for the College, or to be given in money prizes.

Principal WILLIAMS then gave the introductory address. He was happy to welcome back those who were in the habit of attending at the College from year to year—old familiar faces who had taken an interest in the welfare of the College ever since its foundation. He was sure that it would be gratifying to know that their College was gaining and prospering ever since its commencement. The number of students had increased, and last year they had no less than seventy-three attending the classes. It would also be gratifying to know that those students who presented themselves for examination were successful in obtaining their degrees in the preliminary stages, and they had every reason to be satisfied with their prosperity. He proposed in his address to answer two questions, which had been asked during the past year. First—Has our profession made any progress during the last thirty years? and second—Is the practical education of our students not neglected for the sake of superfluous scientific attainments? In answering the first of these questions Principal Williams gave a history of the science down to the present time, adverting to the differences between the treatment of veterinary colleges by the Government of this country and those of the Continent,—the latter Governments countenancing and supporting veterinary colleges, the professors being maintained by the State, and therefore above the necessity of doing work beyond that necessarily connected with their respective chairs. He then treated of the advance of the science with regard to

proficiency. Now-a-days they considered that the profession should possess some amount of education before entering their colleges; but in old days it was maintained, both in London and Edinburgh, that education was rather a drawback than an advantage; that the diseases of the lower animals were few, the remedies few; and that these few diseases and remedies had in themselves something disagreeable to those sufficiently educated to become students of the sister profession; and it was laid down, as an axiom to be handed from father to son, that an ounce of practice was worth a ton of theory,—that the man who could shoe, groom, and ride a horse, was the *beau-ideal* of a veterinary surgeon. They now looked with pleasure on a student who had a good knowledge of the management and manipulation of animals—indeed, they took care to train them in this department; but they considered mere manual labour of secondary importance to scientific attainments. From the ounce of practice just referred to, did this place the newly-fledged veterinary surgeon in a position greatly superior to that of the cow-doctor and farrier? An impartial study of the history of the profession compelled him to conclude that the ounce was simply laid down as a law, not demonstrated. The student was told he was to do so-and-so in such-and-such a disease, but he was not shown how to do it, nor why it ought to be done; consequently young men had to fill a field with dead horses before they knew much of their profession; and secondly, this ounce of practice was founded on wrong principles—the men who promulgated it very often knowing but little of the nature of the disease, holding a knowledge of its causes in the greatest contempt, and endeavouring to expel it by main force from the animal body, looking upon it as some demon that was to be expunged by the heroic methods contained in this ounce of practice. If they compared the history of any epizoötic outbreak of a severe type in bygone days with those which occurred in this neighbourhood last winter, and the marked success which attended its treatment, he thought they could safely affirm that, as their scientific knowledge had advanced, their success in practice had been more complete. In answer to the second question, he would say that, so far from interfering with practical education, the present system gave the student opportunities for attending to that particular branch of his studies not possessed by those who studied under the old rules; as, in the present days, previous examination gave the student eight clear months of his college life to devote himself entirely to the more practical part of his education. In consequence of the teaching that previously obtained, young men left the college with their heads filled with ideas of the transcendental power of some remedies in the cure of disease, yet having but little knowledge of that disease itself, its causes or physiological terminations. The theory they now endeavoured to instil into their students, be it condemned or not, was that which led to the tracing back of the disease to its source, the discovery of its cause, a thorough appreciation of the physiological changes which occur in the animal body whilst under the influence of causes leading to morbid effects, and how the modification of such, after their causes had been removed, might be effected with or without the aid of medicine. In fact, their endeavour was to extend the first attempts made by the late Professor Barlow to break through the trammels of the past, feeling very strongly convinced that the more effectually they did this the more successful would be their practice, and the more valuable their services.

On the motion of the CHAIRMAN, a vote of thanks was given to the lecturer; and a similar compliment having been paid to the Chairman on the motion of Dr. STEVENSON MACADAM, the proceedings terminated.

OPENING OF THE GLASGOW VETERINARY COLLEGE.

THE winter session of the Glasgow Veterinary College commenced on October 24th. In the afternoon Professor COOKE addressed a meeting of students in the hall of the College, Buccleuch Street. There was a good attendance, and Professor Cooke was accompanied to the platform by Professors M'Call, Cleland, M.D., M'Kendrick, M.D., Knox, M'Gill, and M'Queen; Messrs. R. Walker, Lethamhill; Murray, V.S., Girvan; and Pottie, V.S., Paisley. The chair was occupied by Dr. Cleland.

Professor COOKE, in the course of his opening address, said that a few years ago there was an admirable scheme drawn up for the students, but very little time was given for their studies. In about fifty weeks they were supposed to get a good knowledge of anatomy, chemistry, toxicology, materia medica, pharmacy, botany, physiology, histology, morbid anatomy and pathology, diseases of the horse and other domestic animals, medicine, and therapeutics. Now, however, this had been altered, and their time was so extended that they need not be in such a hurry, but were able to ponder and digest, as well as read. They could not say from actual experience what the effect of the new rules would be: the time they had been in operation was far too short for that; but they expected that they would be enabled to turn out men better grounded in the collateral sciences, as well as more experienced in the treatment of disease. The authorities controlling the education of the veterinary surgeon had from time to time altered the course of study—sometimes giving more prominence to theory and book-learning, and at others to practical knowledge; but now they had a happy mixture of both. The old system had produced such excellent men that, although every one seemed to think the change by the extension of time at college a necessary and wise one, the students would need all their energy and ability to surpass them. In that College they had been very successful under the old system, and he trusted they would continue to flourish equally well under the new. The past year had been a very satisfactory one, the number of students being slightly in excess of former years; and, what was of more importance, they had rarely been surpassed in that or any other college. In the final examination last April there was only one rejected student among the number sent up—about a score. He hardly thought veterinary science had received the amount of stimulus in the path of research, in the way of bursaries and endowments, it deserved in the past; but it was with great pleasure he had to announce that a beginning had been made in the West in this direction. The gentleman who was till lately the Chairman of the Board of Examiners—Dr. Allen Thomson—had left with the Principal the sum of £25, to be expended in any way which he might deem fit. He trusted this would only be a nest egg, and that very soon they would be able to announce a larger sum, so as to establish a bursary of the annual value of this gift.. Professor Cooke also stated that Mr. M'Gill had been appointed Professor of Anatomy in room of the late Professor Fordie; and that Mr. M'Queen, who obtained a diploma in April last, had been appointed to the Chair of Materia Medica.

Professor CLELAND, in proposing a vote of thanks to Professor Cooke for his able address, in a few choice sentences referred to the connection which many years ago existed betwixt himself and the College—he having been the first lecturer selected to fill the Chair of Anatomy in the Institution. The progress the College had made since the time he referred to was not only gratifying, but amazing, and no doubt largely attributable to the energy and untiring care bestowed on it by Principal M'Call and his colleagues. Professor Cleland, in complimentary terms, referred to the handsome donation given to the College by his predecessor in office, Dr. Allen Thomson, prior to leaving the city.

RABIES AND HYDROPHOBIA IN DEVONSHIRE.

FROM a very interesting paper in the *Sanitary Record* for November 2nd, on the necessity for further legislation for preventing the extension of Rabies, and written by Dr. A. Wynter Blyth, Medical Officer of Health for the County of Devon, we glean some information as to the appearance and extension of this malady in that county. Dr. Blyth writes :—

"With the most persistent watching and inquiry, and with the accident of an official position giving me constant communication over a large portion of the county, I can only find here and there links of a chain, the rest of which must be pieced on supposition or probability. It came from the north-east: the first definite evidence of its existence I have is that some time in the month of January a rabid dog, wandering in a thicket in the neighbourhood of North Molton, a parish bordering on Exmoor, bit a game-keeper, who, in the early part of May, died from Hydrophobia. In the month of March a strange dog entered by night the yard of a farmer in the same parish, tearing his way through considerable obstacles, and bit his sheep-dog. The sheep-dog went mad a month after the occurrence. These cases, being all in the same neighbourhood, may be, with the greatest probability, viewed as those of direct lineal succession. We may suppose that the solitary rabid dog imported it, and bit others in January; that the second series developed in March, one of them biting the farmer's dog; and that the farmer's dog, with others, formed a third series, one of which at all events fructified in April, and was in a condition to inoculate a fourth series. (The terrible harvest of Hydrophobia is reaped in successive crops. In this county there appear to have been intervals in which no rabid animals were known to exist—viz., from January to the latter end of April, from about May 23rd to middle of June, most of the early part of July, ten days in the early part of September, and twenty days in October. At the present date, October 25th, there is an exacerbation, madness being reported in different parts of the county.) Directly we arrive at the fourth term in the progression, it is useless to attempt to trace the individual agents, and general statements must take the place of details. Without a doubt the third series, of only one of the members of which I have any record, was sufficiently numerous to infect a considerable extent of territory; for in April I traced it into the town of South Molton, and for a radius of four or five miles round that town; these probably belonged to a fourth or fifth series, and from them sprang a considerable number of rabid dogs, wandering about the county in every direction. In May it had appeared in Roborough, Honiton, Little Torrington, and North Lew; Exeter was early infected, and in its turn infected the surrounding country. In July a boy at Ashburton, a girl near Ottery St. Mary, and in August a child at Barnstaple, were all severally bitten by rabid dogs, and have died since at different dates from Hydrophobia. The epidemic (epizoötic?) has not been confined to dogs and men; it has been fatal, directly and indirectly, to a very large number of cattle, sheep, dogs, and pigs.

"During the whole of this time, some authorities have used the powers they possessed of restricting the movements of dogs; others either refused to believe in the existence of Hydrophobia, or declined to take any action. The few boroughs and divisions which used their powers did so according to their individual wisdom,—the result being a number of regulations in different areas of very varying value; and since in other areas there were no restrictions at all, the result has been that very little control, if any, has been exercised on the propagation of the malady. At the present time the infection has reached its height. I have notes of the existence of rabid dogs in every single division in Devonshire; it has gone from north to south, from east to

west, and is at the present time not passing over, but extending to Cornwall."

Dr. Blyth is of opinion that the virus in this outbreak is much more potent than usual.

ANTHRAX IN THE BAVARIAN ALPS.

BOLLINGER (*Deutsches Archiv für Klinische Medicin*, Band xiv.), Professor at the Munich Veterinary School, has recently had occasion to study on the spot the anthracoid affections which, for a number of years, have prevailed in the pastures on the mountains of Upper Bavaria, towards the Tyrol; and where, in 1874, it had assumed large dimensions, coincidently with an extraordinary and inexplicable development of the disease in other parts of Germany. As a proof of this, it may be mentioned that on the Heimgarten, an Alpine pasture on which few above five hundred head of cattle graze, the disease broke out on July 10th, 1874, and on the 26th of the same month, ninety had already perished and more than thirty were ill; in the district of Tœlz alone, up to August 9th, 539 cases of Anthrax had occurred, or 10 per cent. of the bovine population: 236 of these were dead, 243 recovered, and 60 were under treatment.

The disease presented itself in its varied forms—Anthrax Fever, Apoplectiform Anthrax, and Symptomatic Anthrax. It was communicated to the deer in the forests, six of these creatures having been found dead. It was also transmitted to seven people, one of whom succumbed.

Among the numerous carcases of cattle he examined on the pastures, Bollinger constantly noted the absence of hæmorrhagic Enteritis, as well as the frequent absence of hæmorrhagic infarctus in the spleen. As he has always—observed the same negative signs in the animals he experimentally inoculated at the Veterinary School, he asks if this is not the consequence of a certain degree of Anæmia from which the cattle of the Alpine pastures suffer, as did the majority of the creatures he experimented upon.

In the way of medical treatment, recourse was more particularly had to general internal medication. Carbolic acid yielded good results, though not always—especially if the animals had been bled by some empiric. Several trials were made of chloral, but not sufficient to arrive at any trustworthy conclusion. It was the same with salicylic acid, which, according to Kolbe, is tranformed in the blood into carbolic acid, and should therefore be a more efficacious anti-virulent remedy than the carbolic acid itself.

The interment of the carcases not being possible, in consequence of the rocky nature of the ground, they had to burn them; with wood and bushes a pile was made, on which the bodies, previously cut into quarters, were laid. This operation was much less fatiguing than burying, and the carbonisation of the carcases was completed in about twelve hours for the largest of the animals.

In every instance, Bollinger found in the blood of the diseased the characteristic and specific bacteria of Anthrax. In the pulp of an animal whose carcase was examined immediately after death, these organisms were found in such immense multitudes that they formed a veritable lawn of cryptogams, and it might have been said that all the organs were entirely composed of bacteria. With regard to shape and dimensions, these bacteria, which were sometimes obtained from carcases at an altitude of nearly five thousand feet above the level of the sea, did not differ from those that Bollinger had examined at Vienna, Munich, in Switzerland, and elsewhere; and they were identical in every respect with those produced by inoculation in goats, rabbits, and cats. Speaking on this matter, Bollinger insists on

the specificity, even in a morphological point of view, of the Anthrax bacteria, which an able observer like himself, accustomed to these kinds of researches, could not confound with the bacteria of Septicohæmia, those of putrefying animal matters, or those of sour milk, etc. He adds that the bacteria of the latter class may be produced in badly preserved Anthrax blood, even in a few hours; but then it is observed that the bacteria of putridity move about in the most lively manner, while those of Anthrax are immovable.

In his inoculation experiments, Bollinger did not always succeed in producing an Anthrax tumour or malignant pustule; frequently he has witnessed a general infection, an apoplectic Anthrax, supervene,—and this sometimes towards the third day. With regard to this subject, he calls to mind that, recently, Gerlach, after inoculating a horse with Anthrax, saw the fever developed in about two hours, and the animal succumb in a little more than six hours. The duration of the latent or incubatory period, during which the animal may appear in good health, may therefore vary between two hours and seventy-two hours.

In speaking of the causes of Anthrax, Bollinger is inclined to attribute the chief etiological *rôle* to the influence of the soil, which is in its nature marshy. Nevertheless, he does not so much blame the miasmata as a certain specific infection in the soil—an impregnation of the pastures by matters bearing bacteria. Ground soiled by the blood or excrement of animals affected with Anthrax may remain for a long time virulent, as numerous facts prove: the carcase of an animal which has been diseased, when not interred sufficiently deep, is more dangerous than marsh malaria. Ground so impregnated remains a permanent danger, a kind of predisposing influence, which becomes an active agent in producing the disease when occasional causes arise. The principal of these occasional causes, Bollinger considers, is the high temperature of certain summers, and the extraordinary abundance of flies in certain years.

With regard to the influence of warm weather, Bollinger cites the observations of Heusinger, where he says that all the extraordinarily hot summers of this century (1803, 1807, 1811, 1822, 1826, 1834), have been Anthrax years. He adds, that after last August the weather became colder, and the disease consequently more rare in the Alpine pastures of Bavaria.

Bollinger is strongly disposed to attribute a great etiological share in the production of the malady to flies, which popular opinion had already, and for centuries, credited with this power. If there are certain kinds of flies which themselves perish from Anthrax infection when they have fed on animals that have died of the malady, there are many, on the contrary, which enjoy a certain immunity, and may readily disseminate the virus. Bollinger has left flies and asticots in contact with Anthrax blood, and has seen the former at the end of two days, the latter after fifteen days, still quite healthy. Experiments of the same kind, and having the same result, have been also made by Zeilinger, a veterinary surgeon at Munich. Even previous to this time, however, Bollinger has made inoculations on rabbits with flies captured on the carcases of animals dead of Anthrax, and has succeeded in inducing the disease in them. Davaine has likewise succeeded in these experiments. Bollinger is also willing enough to admit the influence of other living media—as wild creatures, deer, etc.—which may readily infect pastures separated from those which are contaminated by forests. Finally, the skins and flesh derived from diseased animals, and which are often disposed of clandestinely, are also a frequent source of infection.

Starting with this special notion as to the causes of Anthrax, Bollinger insists on the complete abandonment for some years of every suspected pasture, as an essential prophylactic measure. He justly considers that it is better to sacrifice, for one or more years, the grazing of these pastures, than

to incur the risk of losing one-fourth or one-third of the herds; in the meantime, advantage may be taken of the interval to drain and otherwise improve the land. In every case it is prudent, and a wise sanitary policy, to leave at once a grazing ground where the disease begins to show itself. And, lastly, Bollinger thinks that in general it is better to burn the carcases of Anthrax-stricken animals than to bury them; and he particularly recommends the careful disinfection, if possible, of the ground which has been soiled by the blood or excreta of diseased beasts. He admits that the measures he recommends are not of easy application, especially in pastures difficult of supervision; but he believes them to be the only rational measures that can be adopted, and that they are in harmony with our present knowledge of the malady.

GLANDERS AMONG THE COAL-PIT HORSES OF SAARBRUCK, LOWER RHINE.

In the *Archiv für Wissenschaftliche und Practische Thierheilkunde* (vol. ii. part 1), the late Professor Gerlach, Director of the Royal Veterinary School of Berlin, furnishes us with a most instructive and interesting article on the prevalence of Glanders among the horses employed in the extensive coal-pits of Saarbruck, Rhenish Prussia (*Die Rotzkrankheit unter den Grubenpferden des Kohlen-Reviers Saarbrücken, und die sanitären Verhältnisse der Pferde in den Steinkohlengruben überhaupt*).

In the coal-mines of Saarbruck, more than six hundred horses are employed, and it is the general belief that those animals which are compelled to live continually in them, or are only allowed to come to the surface for a short time, must sooner or later perish from the effects of the pernicious conditions to which they are doomed to submit underground. It would appear that the mortality among them from what has been called the Pit-disease (*Grubenkrankheiten*) or Pit-Catarrh (*Grubendruse*), has for years been very great, though it has been limited to certain pits. The loss during the last thirty years cannot be correctly estimated.

It was reported in 1864, that in one pit alone—that of Dudweiler—seventy-six horses had been lost in three years; and Veterinary Surgeons Kautz and Willach stated that, from 1874 to 1875, in three pits there were twenty-eight deaths, and in another—that of Friedrichsthal—forty-seven. Only from 1852 have statistics of the losses been attempted; and from these it appears, in twenty years (up to 1872), there were more than 434 glandered, and more than 253 suspected horses.

The general belief at Saarbruck, even among the veterinary surgeons, was that Glanders arises spontaneously in the pit horses, in consequence of their continual and excessive fatigue in a vitiated atmosphere, and chiefly through improper or inadequate feeding. The leaseholders looked upon the misfortune as a matter of course, and as a kind of annual tax they had to pay for working the mines with horses—while the veterinary surgeons thought the disease was a special kind of Catarrh which predisposed the animals to Glanders, and that this specific malady would certainly ensue if they continued to be exposed to the same mal-hygienic influences. As has been said, they believed it to be a particular kind of Catarrh or "Strangles," which could generally be cured by careful treatment, especially by removing the diseased from the pit and working them in the open air. They took the disease, it was asserted, because they respired a vitiated atmosphere, inhaled the coal-dust, often drank stagnant water, were exposed to frequent changes of temperature, and sometimes to draughts when they were very hot. It was the opinion of Veterinary Surgeon Kautz, who had made a special study of the

coal-pit malady, that it was curable if taken in time and properly treated; but otherwise that it ran into Glanders, just as that disease often succeeds "Strangles," or Pyæmia becomes Glanders. Horses suffering from the Catarrh were often sold to boatmen and coal-carters, from an idea that it disappeared when the animals worked in the open air above ground, but would soon return if they were worked again in the pits. In this way, in 1874, from one pit, fifty to sixty horses were openly sold; and as the malady was only Glanders in one of its less distinct forms, it can readily be understood that the disease was not only maintained in the pits, but that it was carried about the neighbourhood and widely disseminated by means of these discharged horses.*

So long as the spontaneous development of the malady in the pits was believed in, and the above-mentioned causes were supposed to be at work in its production, the necessary sanitary measures for the extinction of Glanders were more or less neglected. Those animals which were manifestly affected with Glanders were certainly destroyed, and a more or less superficial disinfection was carried out; but nothing more was done in this direction, as the managers of the pits thought they were in the presence of an inevitable loss, as a natural consequence of the work in the mines. It should be noted, however, that with regard to hygienic measures much was attempted: the underground stables were made as comfortable as possible, the ventilation was improved, better water was procured, and everything that could be suggested in this direction was accomplished; but without avail. Special veterinary surgeons were employed to make periodical inspections; these inspections took place at first every two months, but latterly they were made more frequently. These inspections proved of no value, as those interested in concealing the existence of disease found ready means of keeping the most suspicious animals out of the way; while the inspectors did not regard as glandered, horses affected with this so-called "Grubendruse," they being apparently possessed of the idea that the three pathognomonic symptoms of Glanders should be present—or at least the ulceration. So that they allowed suspected or really glandered horses to be sold and carried away into different localities; and the result is given by Gerlach in an enumeration of the districts in and around regions where Glanders had committed the greatest ravages for many years.

Matters at last attracted so much attention, that the enlightened Prussian Minister of Agriculture, Friedenthal, deputed Professor Gerlach, in May, 1875, to visit and report upon the state of the horses in the Saarbruck pits.

The duty was not a pleasant one, as for a number of days he was engaged at great depths—three hundred to a thousand feet below the surface of the ground—clad in a miner's dress, and with a Davy-lamp in hand.

An interesting fact noted in this inspection, was the discovery of a certain number of pits, the horses in which were perfectly free from Glanders and the so-called "Pit-strangles"; though with regard to work and sanitary management they were in nowise different from the horses in infected pits. In four pits, containing 297 horses, there was not the least trace of Glanders or Farcy; while in nine other pits, in which were 595 horses, he found twenty-eight undoubtedly glandered, only twelve of which had been isolated, and

* Zundel, in remarking on this occurrence in the *Recueil* for February, 1876, states that the government of Trèves is one of those in which Glanders always most extensively prevails, and particularly in the circles of Saarbruck and Sarrelouis; the horses employed in drawing the boats on the canal of the Saar have often carried the disease into Lorraine and Alsace, and to such an extent that in the latter the authorities have been compelled to resort to special sanitary police measures.

forty-two more or less suspected. These and the sixteen glandered horses were mixed up and working with those apparently healthy.

Many of the horses which Gerlach pronounced to be affected with Glanders, the owners declared were only suffering from the "Pit-catarrh," and he appears to have met with strong opposition from these people. Some of the horses were asserted to be recovering, the swollen glands were diminishing, and they would do good service for years to come. It was only when the nasal discharge became very profuse that isolation was had recourse to; and not until ulceration of the Schneiderian membrane was advanced was a horse destroyed.

Nearly all the cases of Glanders found in the pits were of the chronic type, the submaxillary lymphatic glands being slightly enlarged, very hard, and adherent to the surrounding textures; some had trifling nasal discharge, and others had the breathing affected, as if "broken-winded"; these were in good condition, with smooth glossy coat. Glander ulcers were only discovered in a few horses, and Farcy in three.

At the recommendation of Gerlach, the horses suffering from confirmed Glanders were destroyed by order of the *Landräthen;* and as the Professor could not conveniently make an examination of the carcases, this was undertaken by Superior Veterinary Surgeon Schaetzer. The bodies of twenty-four horses were dissected, and in all were discovered evidence of the presence of Glanders; in the majority the disease had been of long standing, and of an unusual chronic form. The more important facts of the necropsies are as follows:—

1. Glander ulcers in the upper part of the nostrils in eighteen horses.

2. Stellate cicatrices, near to or without the Glander ulcers, in twelve horses,—in six cases they were very much diffused on the nasal septum and turbinated bones.

3. Submaxillary glandular alteration; in eleven cases the glands were unusually large and hard, in twenty-three cases they were studded with miliary tubercles, and in three cases they were calcified.

4. Large glander nodules in the lungs in fourteen cases; in five they were as large as a goose's egg; in three cases, in the centre of the glander tumours was a cavity containing purulent and caseous matter.

5. Miliary tubercles were found in the lungs in twenty-one instances, and in seventeen horses they were in a calcareous condition.

6. Glander nodules were found in the spleen in four cases.

As we have said, Gerlach's opinion met with strong opposition from the horse-contractors, and even from the local veterinary surgeons, who would not admit the existence of Glanders in horses which externally gave every evidence of being in good health, and did their work well. Nevertheless, the Professor, strong in his scientific knowledge and extensive experience, insisted upon the correctness of his diagnosis, and ordered forty-two of the suspected animals to be isolated. The judiciousness of this measure is demonstrated by the fact, that in less than four months thirty-six of them were disposed of, thirty of which were affected with confirmed Glanders. Of the other six horses (four of which were drowned in the Saar, and two died of Colic), four were found to be infected with Glanders. Thus, of the forty-two horses sequestrated, and placed under observation as "suspected," thirty-four were glandered.

In his inquiries into the sanitary condition of the pit horses, Gerlach makes us acquainted with some very interesting facts as to equine subterranean existence. The horses employed are strong, active animals, like those bred in the Ardennes. Their condition was excellent, and coat fine and shining, as if in the best of health. With the exception of those glandered and suspected, none of the other 525 offered indications of

any internal or external chronic or acute disease. In a few there was a slight tendency to affections of the lymphatic glands in the submaxillary space or elsewhere; as well as to Catarrh, Rheumatism, or Inflammations. Taking all things into consideration, the health of the horses was wonderfully good; and as a rule they were in better condition than horses working above ground. Even those which were glandered appeared to be less affected constitutionally, and their health less undermined by the disease, than is usually observed. Horses which had evidently been affected with Glanders for a long time, got through their work fairly well, were fat, and had the coat shining; while externally the nasal discharge was scanty, often absent, and the only symptom was the large, hard, submaxillary, lymphatic gland. Farcy, as has been already noticed, was extremely rare, but the pulmonary nodules of Glanders were never absent.

Of the injuries and diseases incidental to their occupation, wounds of the head, and lenticular Cataract must be placed in the foreground.

Gerlach enters at length into the feeding, working, and general care taken of the pit-horses, which he considers fairly good. The water and ventilation, as well as the temperature, he alludes to, but does not find much fault with. In inspecting the underground stables, he could not perceive those ammoniacal emanations which are so marked in stables above ground; and in those places where the strongest currents of air were noted, there was no sensible difference in the temperature, which all the year round was about that of summer: milder and far more equable than outside the pit. Indeed, Gerlach was so impressed with the predominance of those conditions which are favourable to health, that he is disposed to admit a lesser degree of virulence or contagiousness in pit Glanders than in that occurring in the open air.

Gerlach concludes his valuable contribution to the literature of this most serious equine malady by the following *résumé*:—

"1. Among the coalpit horses of Saarbruck, injuries to the head and blindness from Cataract are, of all other ailments which have their origin in the particular conditions of pit life, the most common. In all other respects, everything relating to health is very favourable.

"2. With the exception of the existence of Glanders, the whole of the horses in the nine coalpits were in the best of health. This disease is due to a specific cause,—it is an infectious disease, and is no more the ordinary 'cold' of every day occurrence than it is a simple Catarrh. Nowhere in the month of May could such a number of horses be found in such thorough good health. Among pit horses Chronic Catarrh, and glandular affections in the submaxillary space, are therefore always to be looked upon with more suspicion than any other disorders.

"3. 'Chronic Strangles' ('Pit Strangles') is not due to some pernicious influence peculiar to coal-mines. It is not a pit disease; it is the so-called 'suspicious Strangles' (*verdächtige Druse*),—that is, Glanders in its developing stage.

"4. Genuine development of Glanders occurs among the coal-mine as among other horses. Only when such development occurs among horses above ground there may be doubts or uncertainty as to its origin; but in the coal-mine there should be no uncertainty, owing to the excellent sanitary arrangements maintained therein; and, secondly, owing to the fact that Glanders was only discovered in five pits, that a similar number of horses in four pits were wholly free from it, and that in three pits it had not been seen for many years, though the management and general conditions were the same in the free and infected pits. District Veterinary Surgeon Werner, who had attended to the horses in the Itzenplitz pit for twenty years, states that he had never found a case of Glanders there; while in the Dudweiler

pit, in which are the best stables, and where the management is without fault, Glanders has continually prevailed for as long as the present managers can remember.

"5. Glanders is domiciled in all the infected pits, and the belief in its spontaneous development has caused the neglect of sanitary police measures. The disease is therefore stationary in these mines, which have for years been a source of the disease for the neighbourhood.

"6. Glanders runs its course among the pit horses slowly, and at first with very few apparent symptoms, under ordinary circumstances. The chronic character of the disease in them is very well marked throughout, Glander-Catarrh being little noticed, and the nasal discharge in the majority of the diseased horses being almost, if not quite, imperceptible. Farcy was only found in three cases. From the character of the submaxillary lymphatic glands, as well as the result of the necropsies, the duration of the disease in the majority of cases could not be calculated; it could only be surmised that with more than one-half of the horses it must have been in existence for more than a year.

"7. The very chronic course it runs corresponds apparently to its contagiousness, which is feeble among the pit horses.

"8. Glanders can be extinguished among the pit horses. The difficulty in accomplishing this, however, must be greater than above ground, though the less virulency of the disease and other favourable circumstances make its extinction possible without evacuating the infected pits and without destroying all the horses. The sanitary police measures must be as follows: the strictest veterinary control; weekly inspections of all the pit horses; prompt destruction of those exhibiting symptoms of Glanders, as well as of those presenting suspicious symptoms; isolation and surveillance of those offering the most trifling suspicious indications; the necessary disinfection of the hospital stables without the pit, and the stables within it, as well as every place where the animals may have been fed. The surface of the coal should be disinfected by a concentrated solution of chloride of lime.

"The most important point is the immediate isolation of any horse presenting the slightest suspicious symptom; and as the general health of pit horses is much better than that of horses working above ground, Catarrh and glandular affections seldom prevail. Therefore, in all the infected pits all horses which exhibit symptoms of Catarrh or slight Strangles should be looked upon as suspicious, and isolated."

Gerlach's paper appeared in last January's number of the *Archiv*, and we learn that in April energetic measures were adopted for the extinction of Glanders in the contaminated pits. In the Kronprinz mine 45 horses were destroyed, at the Dudweiler mine 116, at the Albert mine 20, and at the Ziehwald mine 2; and other horses were not to be introduced into these pits until disinfection had been thoroughly carried out. The owners of the slaughtered horses—the contractors for horse power—were to receive from Government full compensation for those horses which were found entirely free from the disease before they were killed; and the provincial funds were to furnish half the value of those which were diseased.

PATHOLOGICAL ANATOMY OF CHOREA IN THE DOG.

A PAPER was recently read at the meeting of the Royal Medical and Chirurgical Society of London, on "The Pathological Anatomy of Canine Chorea," by Dr. W. R. GOWERS and Mr. H. R. O. SANKEY. The paper contains an account of the changes found in the nerve-centres in two cases of the canine disease which has been termed Chorea, although it bears but little resem-

blance to the Chorea of man. It consists of quick muscular contractions, separated by one interval, and without incoördination or fidgety movement. In the two cases the movements were similar. In one they were confined to one fore-leg, and the changes found in the nerve-centres were slight—the medulla oblongata presenting nothing abnormal. In the spinal cord the large nerve-cells of the cervical region were very granular, and appeared swollen, the body of the cell being in some instances apparently distended with granules, so that it had an almost globular form. This change was more marked on the right side than on the left. In the upper part of the cervical region there was a slight increase in the minute nuclei of the anterior column on the right side. In the upper lumbar region the nerve-cells of the right posterior vesicular column were much more granular than those of the left. In the other case—a young retriever—the twitchings were general, and had commenced (in one fore-leg) after Distemper, two months before death. They were more marked when the animal was at rest, and were accompanied with considerable weakness in the limbs, especially the hind-limbs; sensation was considerably diminished, the posterior half of the trunk and hind-limb being quite insensitive. The muscles of the neck and those of the larynx, tongue, and jaw, were involved in the twitching. After death, the heart, the muscles, and the cerebral hemispheres, with the central ganglia, were healthy. Microscopic examination showed extensive disease in the spinal cord, medulla oblongata, and cerebellum. The most conspicuous change was an infiltration of small round lymphoid cells, precisely resembling white blood corpuscles. Areas so infiltrated were found abundantly in both white and grey substance in all parts of the cord, the distribution varying much: in some parts in the lateral, in others in the anterior, in others in the posterior columns. In some places the anterior, in others the posterior grey cornua, were infiltrated. In some places the nerve-tissue appeared disintegrated and destroyed, but there the infiltration was slighter—it was in the form of ramifying tracts, always corresponding to the course of vessels. From this the authors are inclined to regard it as a leucocytal infiltration. The nerve-cells in many parts appeared healthy, but in others were very granular, and in some parts were surrounded by the lymphoid cells. Some nerve-cells had a granular centre and an ill-defined boundary. The protoplasm of many was encroached on by vacuoles, partly outside the cells. These had in places almost destroyed the cells. They appeared formed during the process of hardening; but the authors suggest that they are of pathological significance, since they were absent in another cord similarly prepared. In the medulla oblongata the changes were similar but slighter, and confined to scattered areas of cellular infiltration. A similar infiltration existed extensively in the medulla of the cerebellum, and was in some places very dense. The cortex of the cerebellum, however, was healthy. In each dog the effect of section of the cord was observed. In the slighter case Dr. Hughlings Jackson had noted that the movements continued for a few moments after pithing. In the other, in which the changes in the cord were extensive, artificial respiration was kept up after division of the cord, and no movements occurred in the parts below the section, although they continued in the muscles of the head and jaw. In other recorded cases, however, similar movements have been observed to persist after the section of the cord. It is remarkable, therefore, that in this case, in which the cord was so diseased, the movements should have been arrested. It is possible that in some cases the movements may be encephalic (perhaps cerebellar), in others of spinal origin; but another explanation of the cessation of the movements may be that the section of the cord temporarily inhibited by shock the action of the weakened nerve-cells of the cord. The cellular infiltration appears from its course to have been the result of vascular disturbance, but whether

primary or the result of functional over-action of the nerve-elements, it is difficult to say. Its random position indicates an independent progress, and accounts for the motor and sensory paralysis; but its limitation to the cord, medulla, and cerebellum suggests a primary dependence on functional disturbance of the nerve-elements. The only morbid appearance common to the two cases was a change in the nerve-cells of the cord; and this may be regarded as the primary morbid change, the indication of their over-action to which the vascular change and cellular infiltration are secondary in origin. To decide these and other points, however, further observations are necessary.

The PRESIDENT, in according to the authors a vote of thanks, said that good honest work like this was never lost, serving as materials from which hereafter some real and important conclusions might be deduced.

Dr. CADDY made some remarks tending to show the dependence of differences in muscular power among animals upon the development of the spinal cord.

Dr. JOHN HARLEY said that probably what had been found in the case of the dog would be equally applicable to man; and he agreed in the suggestion thrown out by the authors of the paper, that the movements of Chorea are probably due to the intrinsic action of the nerve-cells, to which the vascular changes are secondary. He had himself been enabled to produce Chorea artificially in the dog by the administration of the alkaloid cryptopia. The movements came on about half an hour after the absorption of the drug, and lasted until it was eliminated. This could only be by its direct action on the nerve-cells, especially as examination of the spinal cords of animals so treated did not reveal any evidence of intense vascular congestion or stasis.

Proceedings of Veterinary Medical Societies, etc.

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of this Society was held in the London Hotel, Edinburgh, in November,—Mr. C. Cunningham, Slateford, president, in the chair. There were present Professors Williams, Walley, and Vaughan; Messrs. Balfour, Waugh, Rutherford, Brown, Reid, Aitken, jun., Balfour, jun., Young, Dalley, Boyd, Weir, and the Secretary.

Mr. William Cumming, V.S., Edinburgh, was, on the motion of the Chairman, unanimously elected president for the ensuing year, Messrs. Boyd, Young, and Balfour being chosen as vice-presidents. Professor M'Fadyean was elected to fill the office of treasurer and secretary.

Miscellaneous Business.

Principal WALLEY, after calling attention to the desirability of having the rules of the Benevolent Society printed and circulated, referred to the question of professional fees in court cases. In Scotland, he believed, they were only entitled to demand two guineas per day, and a third or second class railway fare, no matter how far they had to travel. In England, he understood, they were empowered to demand six guineas a day and first-class railway fare. He proposed to bring forward a motion on the subject at the next meeting, with a view to obtaining a proper legal opinion on the subject.

Principal WILLIAMS said he had consulted legal gentlemen on this point, and had ascertained that although Mr. Field, of London, had been allowed six guineas per day for attending court, that allowance was made by a local auditor, and was by no means a general rule. The law entitled no man—

not even Liebig—to claim more than two guineas a day for attending court. They could, however, charge for preparing evidence; and in the event of their having to attend a lawyer's office, a big fee could be charged for that. They could also arrange beforehand what the fee should be, and if unable to come to terms, they might refuse to lend assistance. They were not bound by any law to examine an animal.

Principal WALLEY intimated that after this explanation he did not think it necessary to proceed with his motion.

The CHAIRMAN observed that in the local courts he had sometimes to be content with an allowance of *7s. 6d.*

The Inoculation of Pleuro-pneumonic Cattle.

Mr. REID, V.S., Leith, said that as the Contagious Diseases (Animals) Act had been in existence for several years, he should like to have an expression of opinion as to whether it had done any good. He was of opinion that it had been an utter failure, especially in reference to the thirty days' restriction.

Principal WILLIAMS remarked that so long as people continued to buy animals and place them in infected byres, they would always have Pleuro-pneumonia amongst them. It might be viewed as an interference with the liberty of the subject to meddle with people in the purchase of cattle; but it was a question for consideration whether compensation should be allowed to parties who persisted in buying out of infected stock, or in placing cattle in byres where infection existed. The Act had not, in his opinion, been an utter failure, though it had failed to a certain extent. It imposed certain obligations on inspectors, and he had happened to be the first who had been tried on this point. Perhaps the position of inspectors might come to be a matter for further consideration.

Principal WALLEY observed that in a paper read before the Association some two or three years ago, he had pointed out that the thirty days' prohibition was simply a farce. With regard to compensation, in Edinburgh the magistrates or local authority gave only about one-tenth as compensation where people brought in animals that were infected with disease. In fixing any remedy for the evils of the present system, he maintained that the public should not be thought of. In regard to Edinburgh and Leith, he coincided with Mr. Reid in thinking that the Act had not done a grain of good. There was as much Pleuro-pneumonia in Leith now as there had been for the past five or six weeks. Where the Act was properly carried out by the local authority, good results might possibly be arrived at; but this was not the case in the districts to which he had referred.

Principal WILLIAMS spoke of the inoculation experiments going on at the Brown Institute in London. Four inoculated animals had so far resisted the disease that the future would determine whether inoculation would be effectual in preventing the spread of Pleuro-pneumonia. He was of opinion that it ought to have been tried long ago. It had been tried to some extent successfully on the Continent, and the experiments had gone far to demonstrate that inoculation would take the place of slaughter.

The CHAIRMAN asked whether the cattle experimented upon had been placed alongside other cattle.

Principal WILLIAMS replied that the animals were subjected to very severe trials.

Mr. RUTHERFORD, V.S., Edinburgh, alluded to unsuccessful cases of inoculation which had come under his notice; but these, it was explained, were owing to the selection of bad virus. Mr. Graham Mitchell, of Melbourne, deserved the highest commendation for having carried the experiments so near the point of perfection. When the disease broke out in an

Australian herd, the worst cases were slaughtered, and inoculation was proceeded with, the lymph being taken from animals affected with a mild form of the disease. By careful inoculation the disease remained in its mild form, and in this way passed through the herd—the loss being probably not more than 2 per cent. He could not say what the loss had been before, but he had been told that it was as high as 60 or 70 per cent.; and where the inoculation was badly performed it might amount to 20 per cent. An inspector of cattle out in New South Wales—whose name for the moment he forgot—had expressed a willingness to communicate with them on the subject. The inspector referred to was over among them some time ago, and complained that he had been treated here with some discourtesy. In response to circulars issued to owners of cattle in New South Wales as to their experience of the efficacy of inoculation, the replies in favour of inoculation were perfectly overwhelming. In the colony of Victoria he had no doubt inoculation would in a few years become compulsory, as, though it might not entirely prevent loss from disease, it certainly modified it. Nothing would arrest the progress of the disease in this country until the process of inoculation became fairly recognised. He had seen scores of cattle inoculated in Australia, and the intelligent voice of that country, and of those most interested, was strongly in favour of it. Sometimes they found that the disease passed through a herd in such a mild form as to make them feel satisfied it was about as beneficial as the process of inoculation itself. There was, however, no guarantee that the disease would assume this mild form; and where inoculation had taken place, the disease had not made its appearance. So satisfied was he about the efficacy of inoculation, that he had frequently secured lymph and inoculated his client's cattle. The question, so far as regarded this country, was, Would this be legal?

Principal WILLIAMS.—"It is not."

Mr. RUTHERFORD proceeded to describe the process of inoculation.

Principal WALLEY regarded this as a subject deeply interesting to the profession, and spoke of the disfavour into which certain processes had fallen in that district—owing, he supposed, to bad inoculation. Not satisfied with the lungs, some had gone the length of inoculating with pieces of liver; and various processes which had been adopted had fallen into disrepute. The experiments at the Brown Institute were valuable, but he considered them to be too limited to be of much use, as, in a matter of this kind, they had to be careful in receiving evidence. In illustration of this, he observed that it was at one time thought that Foot-and-mouth Disease could not be propagated by the ordinary method, but the reverse was afterwards found to be the case. Without saying that he did not believe in inoculation, he would advise them to be very careful in receiving evidence. He had tried with great success the administration of arsenic; and he looked upon this, when properly applied, as one of the best preventives of Pleuro-pneumonia. It was a question whether pleuro-inoculation produced Pleuro-pneumonia proper; but he should rejoice if by inoculation they might be enabled to prevent a disease which just now formed the greatest scourge from which many parts of the country suffered.

Mr. REID thanked the meeting for the expression of opinion which the introduction of this subject had evoked. He condemned the practice of applying the public money to defray the expenses connected with this disease, and urged that the Privy Council should take steps either to do away with the present Act or to improve it.

The CHAIRMAN would not approve of doing away with the Act, which had several good points. An inspector could choose his own time for declaring a place free from disease, and it was only thirty days thereafter that fresh cattle could be introduced.

Mr. REID referred to a case where an animal had retained the poison for the space of eight weeks before the disease manifested itself.

The CHAIRMAN mentioned, as one of the great hindrances with which they had to contend, that many owners of stock endeavoured to hide the disease as long as they could.

Principal WILLIAMS observed that the theory of Professor Simonds, that Pleuro-pneumonia was not communicated by one animal to another except by actual cohabitation, had been disproved. He (Principal Williams) mentioned cases where, in byres cleaned after infection, and which had been kept empty for six weeks, disease had frequently broken out after that lapse of time. Dutch cattle, for example, came into their town byres; and there, although these byres had been cleaned and kept empty for six weeks, the disease had manifested itself among these foreign cattle. One would be disposed to blame the Dutch cattle; but it was a notorious fact that these cattle—or others from the same shipload—when they went into healthy stocks, showed no symptoms of the disease. That was to him evidence that Pleuro-pneumonia was lurking in their byres. At all events, the thirty days' theory had been entirely knocked on the head.

Principal WALLEY referred to the theory of the spread of the disease by cohabitation, and also to the views of others, who held that it might be propagated by hay or dung. He maintained that it might be propagated in other ways. Only the other day Mr. Aitken, Leith, told him of a case of infection where the animals were separated by a wall. In regard to Dutch cows, Mr. Melvin, the Chairman of the Scottish Chamber of Agriculture, had made a statement before the Committee of the House of Commons, to the effect that this disease was introduced by foreign cattle, and that it spread in the areas into which these foreign cattle were brought. No more misleading statement was ever made before a Parliamentary committee. It had been his (Principal Walley's) lot to examine these cattle as they were landed at Leith. Last year he had examined upwards of a score of carcases; and not only with regard to those which had been destroyed on the boats, but also with regard to the live cattle, he could state that he never saw the slightest trace of Pleuro-pneumonia about them. Frequently he had known them to die from injury on the voyage, but he never found them suffering from Pleuro-pneumonia. His experience went to show that this disease was never introduced by foreign cattle, and, as Principal Williams had remarked, it was only after they had been put into infected byres that they were attacked by the disease. They were then suffering from the effects of having been knocked about on board ship, and were in a condition very favourable for harbouring the virus. The cases in which he had found the disease to originate had been those of home-bred English cattle,—of this he was quite confident.

It was agreed to continue the discussion of this subject at a future meeting.

The Educational Aspects of the Profession.

Professor VAUGHAN read an interesting paper on this subject, pointing out the need that existed for some adequate preliminary educational test, and for the establishment of an examination analogous to what was called the "preliminary scientific" in the London medical schools. The examination for the Fellowship was in his opinion more difficult than it ought to be. Then, again, a veterinary surgeon must be of five years' standing before he could be eligible for a Fellowship of the Royal College,—an interval sufficient to enable him to forget all he knew about science in the abstract, if he were a man in active practice. He objected to the rule by which office-bearers and examiners were exclusively selected from the Fellows of the College, members

being ineligible; and he submitted that if examiners were compelled to be Fellows, lecturers at least should be under a like compulsion. The exemption of graduates from the preliminary Fellowship examination was also criticised, as well as the different qualifications in vogue with the different colleges. In conclusion, Professor Vaughan deplored the many cases in which there was war to the knife between practical and scientific men.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE last quarterly meeting for the current year was held at the Queen's Hotel, Leeds, on Tuesday, November 13th, Mr. Patterson, Vice-President, in the chair.

The following members were present: Messrs. James Freeman, M. E. Naylor, J. W. Anderton, John Cuthbert, S. F. Fallding, Peter Walker, Parlan Walker, W. G. Schofield, J. W. Axe, Spillman, Murdoch, J. E. Scriven, W. Lodge, T. Greaves, J. L. Faulkner, and the Secretary.

Messrs. Jas. Howell, Rochdale; Robertson and Britton, Leeds, were present as visitors.

Apologies for non-attendance were received from Prof. Williams, E. C. Dray, Jos. and John Freeman, Geo. Carter, Bale, T. Edmundson, Jas. Lambert, and A. G. Ross.

The minutes of the last meeting were read and confirmed.

Proposed by Mr. JAS. FREEMAN, seconded by Mr. NAYLOR, that Mr. D. R. Sowerby, M.R.C.V.S., of Hull, be elected a member of this Society. Carried.

Mr. PARLAN WALKER then read the following paper on "Quackery in and out of the Profession":—

"MR. PRESIDENT AND GENTLEMEN,—In conformity with your kind invitation at our last meeting, and with my promise on that occasion, I have now to lay before you a few thoughts for your friendly consideration. You were kind enough to leave with me the choice of my own subject for my essay; and whilst being sensible of this favour, it has occurred to me that we have had scientific matters favourably before us for discussion so often that I could not bring anything of an instructive character in that domain. But there is a subject which it seems to me in our district we have peculiarly to contend with, and which will take somewhat the character of a novelty at such meetings as this, and that is Quackery. The title of my essay is 'Quackery outside and Quackery inside the Profession'; and although with some the subject may be considered premature, I am so convinced of its vital influence on the status of the profession, that I venture to bring it before you, not in any personal manner,—far from that,—but that the subject may receive such discussion and notice as this Society is well able to confer.

"Now, it is not my object to say anything derogatory to the Quack: this is a free country, and every man has a right to pursue what course he considers best for his own interest; and although cases have come before us of flagrant maltreatment, we must remember that it is not every man's privilege to take up residence and pursue the curriculum at the college of training; yet, undoubtedly, a person may have obtained a certain degree of knowledge of the veterinary science, without undergoing such training, as to insure success in simple cases. Every one has a perfect right to utilize his knowledge. But with reference to his real qualifications the public are very much in the dark, until some complicated case springs up; and so long as his clients have their eyes open, the profession can have no reason to complain. As to the Quack assuming the title of Veterinary Surgeon, we of course cannot blame him; but here is a subject claiming our earnest consideration, and it seems to me I may now enter on the second part of the subject, as this matter belongs to our

internal arrangements, and should be within the scope of our correction. Now, when I went to college, and spent my money and time, and at the close received my diploma, I honestly thought that I had got an authorised and protected title of Veterinary Surgeon, and the diploma referred to plainly told me that I was qualified to practise the veterinary art; but I found no protection conferred upon me by what I fondly looked upon as an exclusive authority, and that the title of Veterinary Surgeon could be assumed by any incompetent or unauthorised person, without restriction. Now, this is a state of things which I think, for the credit of the profession, we ought to repressively handle promptly; and I bring it forward to elicit discussion, as I think it very unfair that, after spending my money and time, should I make a mistake I am liable at law, whereas with the Quack, the law protects him, and tells claimants they should employ properly qualified persons. But in nine cases out of ten claimants are ignorant as to the non-qualifications of their veterinary surgeons until the plea is put in in defence. Therefore I think, if the law holds us responsible, it should also protect us from infringement on our privileges and title, as is the case in the sister profession.

"Another feature of Quackery inside the profession is—'No cure, no pay.' Now, when your training and your profession are so lightly valued as to require you to take up cases on such terms, no credit is conferred upon the profession, and no ultimate advantage to the proposer, either with the patient, the owner, or the servant, can possibly accrue; yet such cases are to be met with. Again, we have within the profession gentlemen who practise the homœopathic or the allopathic treatment, as their clients desire. I look upon this as a very base system of Quackery. I think one ought to stand by the one side or the other. The two systems are so diametrically opposite to each other, and the one receives no sanction from our honourable Society. Now, I do not believe in homœopathy; and an influential client of mine styled it, prescribing four drops of nothing to a bucket of water, and dipping the extreme point of the tail in it twelve times a day; and another one in much more expressive terms, but not so polite—showing the absurdity of this mode of treatment. By all means let us pin our faith to one system. There is another species of Quackery I have met with, that I may allude to in passing: and that is hawking medicine and recipes through the country, putting into the heads of grooms and stablemen notions that they have got in their possession specifics for different diseases; and when the absurdity of such notions is made manifest by being put into practice, it does not redound much to the credit of the profession when the retort is made, that the recipe was obtained from so-and-so, often without the sanction and knowledge of the master,—and we all know how difficult it is to uproot prejudice of ignorant minds. I think we should set our faces against this begging system. It would give a ludicrous aspect, maybe, were some of our friends asked to produce their pedlar's licence: they might be weighed on the scales and found wanting. But, seriously, I have often found this detrimental to the dignity of the veterinary profession.

"Mr. President, I have now come to the most vital point of my subject—a point, sir, at which I would fain refrain from going any farther; but in all honour and justice to our noble profession, its members, our Society, and myself, I feel it a bounden duty to bring it to the front. I am about to tell you of the great helm of success of the Quack—his wheel-of-fortune, his fortress, his reserve, his haven, his great boast; and that is, that whenever the Quack sees danger, or that the death of his patient is inevitable, coupled with the confidence of his client being shaken, he has nothing to do but to send a telegraphic message to one or other member of our profession, and on the shortest notice he has him by his side for consultation. It is a fact, and it has come under my own personal knowledge, that

my brother members of the profession are not always sent for to relieve the dying symptoms of the victim of the Quack. Nay, friends, it is when the confidence of the client is on the balance, and the reputation of the Quack at stake, that the sanction of our profession is sought, to bolster up the reputation of the Quack and hoodwink the shaking confidence of the client. It is by those means that the principles and practice of our profession are kept from having their legitimate issue and promotion. This, Mr. President, is a most miserable state of affairs; nevertheless these are facts, and facts are stubborn things and 'chiels that winna ding'; and, sir, if there is one thing more than another in this world that tends to disgrace, to disparage, to undermine, to lower the status, and to fire, blister, and blast the prospects of the veterinary art, it is the qualified Veterinary Surgeon consulting with the Quack—quackery of quackeries in the extreme. If these gentlemen have not any respect for the honourable profession from which they take their title, they might at all events have some little respect for themselves: what is the use of our meeting here from time to time, if this object cannot be attained? An isolated veterinary surgeon here and there is powerless to put down Quackery; and we may well take a lesson from the sister profession, who place a united front against the inroads of Quackery in every shape and form. I yield to no man in my desire and determination to uphold and raise the character of our profession; and whilst it is far from me to introduce an element of discord into our meetings, the weal of this Society is paramount with me; and notwithstanding that at the postprandial discussion on this very subject at one of our late meetings, it came from high authority that Quackery would die a natural death (natural death, forsooth!) how can it so die, when upheld and nurtured in the manner described? Do let us determine, my friends, individually and collectively, to put away this state of things, for in that course is the only remedy; and, for my part, I shall exercise, as I have hitherto done, the whole weight of my humble influence, determination, and notice, to bring about a better issue, to terminate a state of things alike unprofitable to the public and discreditable to ourselves."

A very warm and animated discussion followed the reading of the paper, in which Messrs. Freeman, Greaves, Anderton, Broughton, Cuthbert, Faulkner, Peter Walker, Lodge, Murdoch, Spillman, Axe, and Howell took part.

Ultimately two resolutions bearing upon the subject were passed.

The first resolution was proposed by Mr. BROUGHTON and seconded by Mr. PETER WALKER, and was as follows:—

"That it is, in the opinion of this meeting, highly derogatory to the status of the profession that members should make a practice of meeting and consulting with unqualified men, and instructing them as to the best modes of treatment in cases brought under their notice; and that this meeting expresses its entire disapproval of, and contempt for, the action of such members." Carried.

The second resolution, proposed by Mr. GREAVES and seconded by Mr. BROUGHTON, was to the following effect:—

"That on any member complaining to the Secretary that an unlicensed person is assuming the title and practising as a veterinary surgeon in the district in which the said member resides, the Secretary be empowered to advertise, in such local papers as he may think necessary, the names of those gentlemen who possess the legal qualifications to practise the art of veterinary medicine and surgery." Carried.

Proposed by Mr. MURDOCH, seconded by Mr. FALLDING, that Mr. Walker's paper be sent to the veterinary periodicals for publication. Carried.

A vote of thanks was passed to the essayist with acclamation.

Mr. CUTHBERT then presented the financial statement, showing a balance in hand of £75 10s. 3*d*.

The election of officers for 1878 was then proceeded with, and resulted as follows: President, Mr. S. F. Fallding, Wakefield; Vice-Presidents, Prof. Williams, Mr. Parlan Walker, Halifax, and Mr. W. G. Schofield, Pontefract; Treasurer, Mr. Cuthbert, Leeds; Secretary, Mr. Broughton.

A vote of thanks to the retiring officers was unanimously passed.

A paper, for discussion for the next meeting, was kindly promised by Mr. T. Greaves, on "Germs—the part they play in the production of some diseases; also Disininfectants—the part they play in promoting and modifying disease."

Mr. JAS. FREEMAN, of Hull, on behalf of the members, in a few appropriate and sympathetic remarks, presented to the Hon. Secretary a well-filled purse of gold, as a token of their sympathy for him in the long and painful illness he had undergone.

The SECRETARY, who appeared to be quite overwhelmed at the kindness of the members, expressed his thanks in the warmest terms.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above society was held at the Blackfriars Hotel, Manchester, on the 3rd of October, 1877, Mr. T. Hopkin in the chair.

The following gentlemen were present: Messrs. Hart, Elam, Leather, J. B. Taylor, Locke, Faulkner, Tom Taylor, Alex. Lawson, W. A. Taylor, J. Paulden, J. Marshall, H. Ferguson, Jas. Brooks, Alf. Brooks, Beard, Whittle, J. C. Atkinson, C. H. Thomas, and the Secretary.

Letters of excuse were read from Messrs. Peter Taylor, Woods, Reynolds, Cartwright, Prof. Walley, Kenney, Carter, Morgan, Thos. Greaves, T. S. Faulkner, and John Lawson.

Mr. T. S. Faulkner, of Rochdale, was nominated for election at the next quarterly meeting,

Mr. DACRE placed upon the table a specimen of Hydatid of the tape-worm, which he had taken from the thigh of a living rabbit.

Mr. BEARD exhibited a mastiff dog having a tumour on the *membrana nictitans*.

Mr. SAM. LOCKE then read a short paper on "Osteo-Porosis," which he illustrated by showing the bones of the head and other parts of a pony, the subject of the disease. Mr. Locke stated that, in the onset of the disease, the cases exhibited symptoms such as are usually seen in Rheumatism, and that it was difficult to diagnose the disease until the bones of the head became affected. The progress of the disease in this case did not seem to be checked by any mode of treatment.

An interesting discussion followed, in which a variety of opinions were expressed as to the origin and nature of this comparatively rare malady.

The adjourned discussion on "Azoturia" occupied the remainder of the evening. It was pretty generally acknowledged that horses, as well as mares, were the subjects of this disease, which was at one time thought to be of an hysterical character, and noticed under the title of "Hysteria" by the late Mr. Haycock; that the subjects of the disease were animals receiving an abundant supply of highly nutritious food when not "in work"; that the symptoms seen were the result of blood-poisoning, acting more particularly on the nervous system; and that, on examination of the urine removed from the patient, it is always found to be loaded with an excess of nitrogen and albumen.

The treatment recommended was the administration of an oily purgative, combined with sedatives.

Mr. ELAM had found great benefit from the use of hot bran-poultices along the spine.

The proceedings terminated with a vote of thanks to the Chairman.

W. DACRE, *Hon. Sec.*

MONTREAL VETERINARY ASSOCIATION.

THE first meeting for the present session was held at the Veterinary College on October 11th, the President, Professor D. McEachran, in the chair.

In his opening remarks, the PRESIDENT referred to the satisfactory progress which the Association had made during the short time it had been in existence. He reviewed the work of last session, and characterised it as being of incalculable value to the students and practitioners who attended the meetings; several of the papers then read having been published in the veterinary journals, and well received by the profession, both in Europe and America. It was gratifying to know that they had the good wishes of many of the members who, owing to the hundreds of miles which intervened, were unable to be present. It was also gratifying to see so many new members present. He hoped all the students of both French and English classes would become members, so that all might enjoy the advantages of the papers, journals, and library equally.

The following officers were re-elected:—Prof. McEachran, president; Prof. Wm. Osler, M.D., 1st vice-president; Mr. C. J. Alloway, V.S., 2nd vice-president; and Mr. M. C. Baker, secretary-treasurer. Mr. F. W. McLellan was elected librarian.

The President presented a copy of Law's "Veterinary Adviser" to the library.

Dr. OSLER drew the attention of the meeting to an unusually large verminous tumour on the greater curvature of the stomach of a horse, caused by the presence in large numbers of *spiroptera megastoma*. Specimens of the worms were taken from the tumour, and exhibited by means of the microscope.

At next meeting, to be held on Thursday, 25th October, J. A. Couture, V.S., was to read a paper on "Hydrophobia," and Mr. C. C. Lyford, V.S., to communicate a case of interest.

ROYAL AGRICULTURAL SOCIETY.

AT the monthly meeting held in November, the Hon. W. EGERTON, M.P. (Chairman), reported that there were twelve candidates eligible to compete for the Society's veterinary prizes and medals, of whom six had already entered their names for competition. Dr. Burdon Sanderson had reported on the experiments as to the protective value of the mode of inoculation for Pleuro-pneumonia employed at the Brown Institution. Four of the inoculated animals had been exposed to infection by co-habitation for many weeks in the same stable with other animals suffering from the disease, and the result was so far favourable that none of them had taken the disease. He, however, deprecated the drawing of any conclusion on the subject until much more extensive experiences had been gained by further trials. Although Mr. Duguid had done his best to obtain opportunities for such trials, he had hitherto experienced the greatest difficulty in finding persons who were

willing to allow their sheds to be used for the purpose. There was reason, however, to hope that these difficulties, like others which had been met with, would be surmounted, and that in another month it would be possible to present to the committee a final report on the important question under investigation. Dr. Sanderson had further stated that Dr. Yeo, of King's College, had almost completed his investigations, and that his report would be ready for presentation in a few weeks. In case it should be thought proper to continue the scientific inquiries at the Brown Institution, Dr. Sanderson suggested that, in addition to any further experiments that might be necessary on the subject of Pleuro-pneumonia, attention should be directed to the important subject of Anthrax. In reference to this disease much new information had lately been gained by scientific experiments in Germany which, if pursued in this country, would, he believed, yield very valuable additions to our knowledge of the nature and origin of diseases of this class. The Committee gave notice that at the next Council meeting they would move for the renewal of the veterinary grant for 1878. The report was adopted.

Mr. JACOB WILSON moved the following resolution, of which he had given notice :—

"That this Council would respectfully urge upon the Government the desirability of taking, as soon as possible, the necessary steps to carry into effect the recommendations of the Select Committee on Cattle Plague and the importation of live stock."

He reminded the Council of the steps which they had taken during the year in consequence of the outbreak of Cattle Plague, commencing with their resolution passed in March last, which was as follows :—

"That seeing the precautions hitherto adopted for the prevention of outbreaks of Rinderpest and other contagious diseases of animals in Great Britain have not been successful, it is the opinion of this Council that nothing short of the total prohibition of the importation of live stock from European ports will meet the exigencies of the case."

In consequence of the increasing gravity of the position, and the continuance of Cattle Plague, uniform and compulsory measures throughout the country were also advocated ; and in May, on the Cattle Plague extending to Willesden, outside the metropolitan area, a further resolution was passed, urging the Privy Council to supersede the local authorities in the home counties. These resolutions were backed by deputations to the Lord President of the Council ; and on every occasion practical results had followed from the action which the Council had taken, although the Lord President felt that he could not do all that was asked without further powers and further information. A Select Committee of the House of Commons had therefore been appointed ; and although the report and the recommendations made by that Committee did not go the whole length of what had been asked by the Council, they went far enough to merit the warm support of the agricultural community. He felt, however, that the Society ought not to stop there, as these conclusions of the Select Committee were at present only recommendations ; and the question arose—Would the Government give effect to them, and make them the law of the land ? He thought that it was only proper that the opinion of an important body like the Royal Agricultural Society should be expressed as to the propriety of this step being taken, and he believed that every other agricultural association in the kingdom would act in the same manner. The question was of national importance—more especially to the consumer, who was beginning to find out that "Cattle Disease" was synonymous with "dear meat." Notwithstanding the prohibition of German, Russian, and Belgian cattle, the supply to our home markets was now amounting to a glut, and the producer could not obtain more than

from 8*s.* to 9*s.* per imperial stone; but whether the butcher or the consumer reaped the benefit of these low prices, he was not in a position to say. He concluded by urging that, although it was an unusual course for the Society to petition the Government, and although the recommendations of the Committee did not go to the extent which the Society had asked, he felt that the agricultural interests of the country would be satisfied if these recommendations were to take effect without unnecessary delay.

Mr. BOOTH seconded the resolution. He had attended most of the meetings of the Committee, and could testify to the zeal which its members had displayed in endeavouring to bring out the truth with reference to every branch of the subject, and especially as to an adequate provision of food for the people. He had always pleaded for stronger measures than those recommended by the Committee; but inasmuch as it had been stated by eminent veterinary surgeons that if animals from Germany, Russia, and Belgium could be kept out of the country, and those from other countries could be slaughtered at the port of landing, both Cattle Plague and Pleuro-pneumonia would be prevented from getting across to our flocks and herds, he had somewhat altered his views, and he hoped that the Government would make the recommendations of the Committee in their entirety the law of the country, and thus secure the advantages of increased production both to the producer and consumer, by giving security for the health of their own herds.

Mr. DENT, although he would not oppose the resolution, stated that individually he did not agree with the report of the Committee. No doubt there would be ample discussion in Parliament, where every interest is represented, before the recommendations of the Committee would be made law. He agreed that cattle from Russia, Germany, and Belgium ought to be excluded; and he did not understand why Austro-Hungary had not been placed in the same category, as cattle from that empire could be sent here by way of Trieste; but as regards Spain and Portugal, and other countries which were free from disease, he did not see any necessity for slaughtering their cattle at the port of landing. He considered that the stringent regulations recommended by the Committee, to be enforced in the interior of the country, would be disliked by farmers—except, perhaps, by the owners of valuable herds. As a magistrate, he could testify to the fact that when stringent regulations were in operation, cases of infraction of them were constantly being brought before him, and the delinquents were generally the smaller farmers and graziers.

Mr. HORLEY cordially supported the resolution. Nothing that the Council had done of late years had given more general satisfaction than their action this year in reference to Cattle Plague; and he hoped that the Council would strongly urge the necessity of immediate legislation on the subject.

Mr. BOWLY also supported the resolution, and urged that the great losses which had been sustained in consequence of Cattle Plague should outweigh the inconvenience to which salesmen and petty dealers were put by stringent regulations. The public were beginning to learn that the importation of live stock, so far from cheapening meat, had a directly contrary effect, in consequence of the losses of our own cattle by imported disease.

Mr. CHARLES HOWARD repudiated Mr. Dent's idea that the restrictions advocated would be of special value to Shorthorn breeders. During the last great outbreak there were proportionally fewer deaths amongst the pure herds than amongst the commoner kinds of cattle. In fact, it was the graziers who complained most of the ravages of contagious diseases; and although the agricultural interest was the one which the Society was established to support, he would recommend the adoption of the resolution in the interest of the community generally.

Mr. MARTIN, as one of those who did not possess one of the valuable

herds to which Mr. Dent had alluded, was a warm supporter of the resolution. All shades of opinion were represented on the Select Committee, and he looked on their recommendations as a compromise. He thought, therefore, that the Society ought not to sacrifice the opportunity of obtaining improving legislation, although the Committee had not gone to the extent which the Council desired. His experience as a magistrate was that dealers and butchers were the offenders against regulations having for their object the prevention of contagious diseases of animals.

The Hon. W. EGERTON, M.P., as a member of the Committee, stated that the recommendations of the Committee were not a compromise. On the contrary, he regarded them as strong, stringent, and decisive. The last paragraph, it was true, was carried against the Chairman, and doubtless some thought that it would prevent the Government from taking any action in reference to foreign cattle; but he trusted that the Society would urge the Government not to be afraid of the effect of that paragraph, and that they would uphold the necessity of restrictions on home stock as well as on foreign stock, and press the Government to introduce a large and comprehensive measure on the whole subject.

Mr. RANDELL, as representing the class which, according to Mr. Dent, would not like the restrictions just alluded to, and as having to do with the occupiers of 40,000 acres under similar circumstances, declared that they had the same strong feeling upon the necessity of proper regulations being made as to home stock, and upon doing away with the importation of live animals, and substituting a dead-meat trade, as the owners of high-bred stock. In his opinion, the only way to meet the increasing competition of America was by breeding more animals, and this they could only do if they felt that their stock had ceased to be subject to periodical attacks of imported disease. Farmers, so far as he knew them, would cheerfully submit to regulations themselves, if they were accompanied by such security as they desired. He did not look upon the report as a compromise, but as the result of an arbitration between the farmers and the consumers, after a most careful, patient, and exhaustive inquiry. He hoped the Council would be unanimous in asking the Government to carry the recommendations into effect, and thus set an example to the other agricultural bodies, which, doubtless, they would at once follow.

The PRESIDENT regretted that Mr. Dent had laid such stress upon the feelings of owners of valuable herds. For himself, he could say that he had entered into the question more on behalf of the cotter with one cow, or the small farmer with five or six, than on behalf of the rich owner of a valuable herd, for the small man could not afford the loss of his one cow so much as the Shorthorn breeder that of his entire stock; and throughout the whole of the proceedings the bearing of the question upon valuable herds had not been brought prominently forward. Abundant evidence had been given to show that the falling off in the breeding of animals revealed by the statistics was caused by the fear of contagious diseases, and therefore the more the dead-meat trade was encouraged the better, as it removed the necessity for the importation of the live animals which brought these diseases with them.

The resolution having been put to the vote, it was carried unanimously, and the President was instructed to ask the Prime Minister to receive a deputation from the Council in support of it during the period of the Smithfield Show.

Jurisprudence.

"ROARING" NOT UNSOUNDNESS.

AN interesting action was brought before the Hartlepool County Court, on November 2nd, for the recovery of the difference between the alleged value of a horse (£35), and the amount for which it was sold, in dispute (£18).

The plaintiff, for whom Mr. Marshall appeared, was Mr. Batty, horse dealer; and the defendant Mr. W. Seal, ironmonger, who was represented by Mr. Ralph Bell.

According to the case for the plaintiff, he offered the defendant a horse for sale for £35, and eventually the defendant agreed to buy it, "and take his word for it." He asked for a warranty, which plaintiff declined to give. £9 was paid at the time; and when defendant wished to return the horse, plaintiff was only willing to do so provided he kept the £9, or let him have another horse instead. The horse was a roarer, but a good worker.

Examined: He (plaintiff) received notice that the horse would be put up for sale, and on this being done it realized £18. He declined to warrant the horse, as he knew it was a roarer. It had Stringhalt, which Mr. Seal must have seen at the time, but he made no comment upon it.

Robert Lax, who purchased the horse, said it was a good worker.

The defendant deposed that the horse was sold to him as "sound in wind and limb." Finding that the animal was unsound, he told plaintiff that he should return him, as he was broken-winded. A grey horse was offered him in exchange, but he refused to accept him, as the plaintiff had not dealt fairly with him before.

Mr. Noddings, the defendant's foreman, who was present at the sale, corroborated.

Mr. Peele, V.S., deposed that the horse was a roarer, and had Stringhalt, and was not worth £30.

His Honour said that roaring would not affect a warranty unless it affected a horse's pulling powers, and the Stringhalt was palpable; he therefore found for the amount claimed, less the sum paid into court.

Army Veterinary Department.

THE following movements of army veterinary surgeons were about to take place in India, when the last mail left:—

J. Mills, Royal Horse Artillery, to proceed from Allahabad to Bareilly, for duty with Royal Artillery.

S. Gillespie, Royal Horse Artillery, to march with F battery A brigade (late B battery B brigade), Royal Horse Artillery, from Umballa to Campbellpore, there to be stationed.

J. Burton, Royal Horse Artillery, to march with I battery A brigade (late D battery B brigade), Royal Horse Artillery, from Meerut to Rawal Pindi, there to be stationed.

T. J. Symonds, to march to Meerut with F battery C brigade (late A battery F brigade), Royal Horse Artillery, give over veterinary charge to Veterinary-Surg. Gillard, 15th Hussars, and then proceed with battery to England.

M. F. M. Case, to march with I battery C brigade (late E battery F

brigade), Royal Horse Artillery, from Campbellpore to Peshawur, there to be stationed.

R. D. Graham, Veterinary Department, will march with G battery A brigade (late B battery F brigade), Royal Horse Artillery, from Peshawur to Umballa, hand over veterinary charge to Veterinary-Surg. A. E. Queripel, Royal Horse Artillery, then proceed to Barrackpore, and march with B battery 4th (late 11th) brigade, Royal Artillery, to Allahabad.

H. Thomson, Veterinary Depôt, to proceed from Muttra to Meerut, and march with B battery 3rd (late 8th) brigade, Royal Artillery, from Meerut to Barrackpore, there to be stationed.

J. P. Adams, Veterinary Department, to march with E battery 4th (late 11th) brigade, Royal Artillery, from Allahabad to Mooltan, there to be stationed.

C. Clayton, Royal Artillery, to march with E battery 3rd (late 8th) brigade, Royal Artillery, from Ferozepore to Peshawur, hand over veterinary charge to Veterinary-Surg. Case, Royal Horse Artillery, and return to Ferozepore with H battery 3rd (late 8th) brigade, Royal Artillery, there to be stationed.

W. A. Crow, Veterinary Department, to proceed from Muttra to Meerut, and march with F battery 3rd (late 8th) brigade, to Dinapore, hand over veterinary charge to Veterinary-Surg. Goddard, Royal Artillery, and return to Meerut with C battery 4th (late 11th) brigade, Royal Artillery, there to be stationed.

G. F. Davis, Veterinary Department, to proceed from Jullundur to Barrackpore, and march with A battery 4th (late 11th) brigade, Royal Artillery, to Agra.

Obituary.

WE much regret to learn that Mr. W. Dewar, M.R.C.V.S., of Midmar, Aberdeenshire, died on October 18th, at his residence, Bethlen, after a brief illness. Mr. Dewar was highly respected by his colleagues in Scotland, as well as by a very large number of friends in Aberdeenshire. His reputation as a veterinary surgeon stood very high, and he was a valued contributor to this journal. He graduated so long ago as 1839. Among other testimony to his worth, we may quote the following notice of his demise from the *Aberdeen Daily Free Press*:—"Mr. Dewar, who was a native of the locality, was a man of very considerable natural sagacity and force of character. These qualities, with the addition of acquired skill and extensive reading of the literature of his profession, made him a thoroughly competent and very successful veterinary practitioner, in which capacity he had for many years acted over a wide district. Mr. Dewar was also a man of large general intelligence, and one who took great interest in all progressive movements in the locality where he lived. He was a member of the School Boards of Cluny and Midmar, and frequently contributed to the journals of his profession, as well as to the local newspapers."

One of the senior members of the profession, Mr. Thomas Mays, of Wymondham, has met his death under the most painful circumstances, having been murdered by a workman, when endeavouring to interpose between the miscreant and another man, who was also killed. Mr. Mays either had retired, or was about to retire, from practice; and from his long-continued and successful career, he was much esteemed in that part of Norfolk which had for so lengthy a period benefited by his skill and attention. He graduated February 1st, 1820.

We have been informed of the death, by drowning, of Mr. S. G. Going, 1st United States Cavalry, at California. Mr. Going graduated so recently as April 19th, 1870, and is known to our readers as the author of an interesting paper on "Glanders among Cavalry Horses at California." He perished in a generous attempt to rescue a brother officer from drowning.

The death is likewise reported of Mr. F. H. R. Spratt, late Royal Artillery, who graduated in 1855; also that of Mr. R. Olden, Cork, who graduated in 1839, and of Mr. W. Cockburn, V.S., 112, North Street, Glasgow, aged 74.

Notes and News.

THE BERLIN VETERINARY SCHOOL.—The Budget of the German Minister of Agriculture, in providing an ordinary expenditure of 2,463,000 marks for the support and encouragement of agricultural interests, allots to veterinary schools and veterinary works generally 587,815 marks, of which 44,395 marks are devoted to the Berlin Veterinary School.

VETERINARY HONOURS.—We observe with much pleasure that Professor Röll, Director of the Imperial Veterinary Institute of Vienna, has had the Russian Order of Stanislaus, second class, conferred upon him; also that Professor Generali, of the Milan Veterinary School, has been made a Chevalier of the Italian Order of the Crown.

THE RUSSIAN ARMY.—We learn that the medical staff with the Russian Field Army, now on the Danube, consists of 849 physicians, 3285 assistant-surgeons, 146 dispensers, and 123 veterinary surgeons.

THE BRAIN OF CANIDÆ.—At the last meeting of the British Association, Mr. R. Garner read a paper on the size, etc., of the brain of the canidæ. From measurements of brain-capacity, and from casts taken from the interior of the skulls of numerous dogs, the author drew the conclusion that the size of the brain did not correspond very closely with the size of the animal. He was disposed to argue the descent of the domestic dog (he did not treat of the origin of the dog primitive) from one or more dogs, as no dog had as large a brain as the wolf, nor one so small as the jackal, from both of which the descent of the dog had often been inferred. The size of the brain in the dog varied very little in the different-sized animals—that of a Newfoundland dog being very little larger than that of a terrier; and the intelligence of the animal did not increase with the size of the dog, though in specific species there was an increase of intelligence in proportion to the increased size of the brain. He could not connect the power of dogs with any peculiarity of brain organization, but he found that in dogs with fine scents the front brain was elongated or enlarged.—Professor Macalister (of Dublin) desired to give the results of his examination of the brain of the celebrated greyhound, "Master M'Grath," and stated that after examining the brains of a great many other greyhounds, he was surprised to find that "Master M'Grath's" brain was a good deal heavier than that of any of the others, and that it was not only larger, but that the convolutions were much more complex. He had also found that in complexity of convolutions the brains of dogs varied as much as those of human beings. He did not agree with Mr. Garner that the proportioned weight of the brain of the wolf was greater than that of the dog,—the result of his investigations in this respect being to place the brain of the pointer first, those of the mastiff and setter next, whilst that of the wolf took the third place. The greyhound had a very small brain in comparison with its size. He had found in the case of "Master M'Grath" that the heart was exactly double the weight of that of an

ordinary greyhound; and he would suggest whether it might not be that the great speed of that animal was due to this fact, it being a curious coincidence that the famous horse, "Eclipse," had a heart two-thirds heavier than that of any horse of his own size.—Professor Allen Thomson put it that, in the case of the size of the heart, there might be a way of looking at the question that was exactly the inverse of that in which it was regarded by Prof. Macalister. He should be rather inclined to think that the large heart was the result of the running, and not that the speed was produced by the size of that organ.—Mr. Garner pointed out that, of course, the question of structure must be considered as well as that of size, otherwise the elephant and the whale might be supposed to have greater brain-power than man.

SKIN OF THE DOG.—According to Dr. Stirling ("Reports of the Royal Saxon Academy of Science" for 1876), in the skin of the dog, as in the human skin, whilst the hair-follicles, fat-lobules and sebaceous glands have each a separate blood-supply from a small artery, the connective tissue between the fat, muscles and glands is destitute of capillaries. The sweat-ducts (the popular idea that in dogs there are no sweat-glands is a mistake) open into the hair-follicle above the sebaceous gland, but at some distance from the epidermis. The sweat gland is composed of a layer of flat cells, a structureless membrane on which these lie, and then the cells of the gland. The *erector pili* is composed of elastic fibres, which spring from a network which surrounds the hair-bulb, and which pass in a tract to the surface of the cutis, where they spread out and join the other fibres of the part. Between and among these elastic fibres the smooth muscle-cells are insinuated.

FORAGE CAKES FOR HORSES.—The *Allgemeine Zeitung* says that feeding-cakes for horses are made by machinery at St. Petersburg on a large scale. The cakes are prepared from ground oats and grey pea-meal, to which a little hemp oil and salt has been added, and baked in thin biscuits about four inches in diameter, being previously perforated in numerous places, so as to facilitate the process of softening them when required for use. Experiments made among the troops have shown that, though the horses get somewhat slimmer than usual upon this dietary, their strength is in no way impaired, and they are equal to just the same amount of exertion as before. The biscuits can be given dry, or soaked down in water—the horses eating them with relish in either form.

HYDROPHOBIA.—Dr. Samuel Pratt, M.D. and F.R.C.S., writes to the *Times* from West Malling, near Maidstone, as follows: "On Wednesday, Oct. 24th, I was sent for by my assistant to see a lad, aged seventeen, a farm servant, stated to be suffering from severe symptoms of Hydrophobia. My assistant had seen the case for the first time a few hours previously; and symptoms had existed from the Saturday before, although not recognised. The paroxysms of spasm were exceedingly severe, with total inability to swallow either solids or liquids, although the lad, a fine, strong fellow, struggled well with the disease. He had occasional wandering delirium, but gave rational, quick answers to questions. The case ended fatally two hours after my visit. The dog by which the boy was bitten one month previously exhibits at present no signs of Rabies! The bite was on the proximal phalanx of the thumb and the palm of the hand."

CONDEMNED FLESH.—We learn that 35,000 lb. weight of flesh derived from animals which had suffered from Contagious Pleuro-pneumonia was condemned in Leith during the last twelve months.

NO VETERINARY COLLEGE IN IRELAND.—Dr. Mapother, in his opening address at St. Vincent's Hospital last week, said, "Sir Astley Cooper was for many years, in conjunction with Sir B. Brodie, Sir C. Bell, Babington and

Bright, Examiner in the Veterinary College ; and its president, Coleman, he calls 'for forty years his best made friend.' It is often wondered at that in this country we have no institution for the study of veterinary science ; and, just now, the carrying out of the Cattle Diseases Acts gives abundant work for those qualified by examination elsewhere in bovine, and indeed in human, medicine."—*The Irish Sportsman.*

EFFECTS OF DISEASE ON THE WHITE HAIR OF A COW.—From the *Deutsche Landwirthschaftliche Presse*, we learn that a black and white cow that had been out at grass some time was one evening observed to be suffering from loss of appetite, constipation, suppressed secretion of milk, and pain in the hind-quarters. On administration of salts and clysters, hard fæces streaked with blood were discharged. The next day fever, hurried breathing, thirst, and general constitutional disturbance had ensued. Coagulated blood was removed from the rectum by the hand. Drenches of tartrate of potash and saltpetre promptly given, and backed up with clysters, led to the apparent recovery of the patient in a few days' time, but there came on increased sensibility and warmth of most parts of the skin, the hair upon it standing, as it were, on end. The epidermis separated completely from the true skin in these places, and shrank up from their edges towards the middle line, leaving bare and raw patches behind. In the course of a fortnight there was no trace left of white skin or of white hair over the whole surface of the animal. Even the smallest isolated spots of white hair and skin were thus affected, while the black part of the cow remained unchanged throughout. The epidermis reappeared but very slowly, and for at least three months scarcely a white hair was to be seen.

CATTLE IN RUSSIA.—According to a report issued by the Central Statistical Commission of St. Petersburg, there are about 28,600,000 oxen in the Russian dominions of the Czar, or 35 head per hundred of the population. In the southern provinces cattle play a still more important part—reaching a proportion of 111·8 head per hundred of the population in the country of the Don Cossacks. The exportation of beasts is increasing hugely, the value of cattle crossing the frontier having been 1,250,000 roubles only in 1850, as against 8,000,000 in 1869 and 12,000,000 in 1875-6. The price of beasts intended for slaughter varies from 77*s.* to 143*s.* in different parts of the empire. Of the total number of cattle exported, 45 per cent. find their way to Germany, 43 per cent. to Austria, 11 per cent. to Turkey and the Danubian Principalities, and 1 per cent. only to other countries. The trade with Turkey is, of course, interrupted at present.

MUTUAL SATISFACTION.—An inquiring man thrust his fingers into a horse's mouth to see how many teeth he had. The horse closed his mouth to see how many fingers the man had. The curiosity of each was fully satisfied.

CATTLE PLAGUE IN RUSSIA.—Telegrams to the St. Petersburg papers state that the Cattle Plague, which during the present summer has wrought such dire havoc among the herds on the southern steppes, has now reached the Polish provinces, and is rapidly approaching the frontier. The losses sustained by the Russian peasantry since the Plague crossed the Ural mountains two years ago are immense. News is telegraphed from Tiflis, that the authorities fear that the unparalleled prevalence of the Plague has caused the entire bovine race of Caucasia to become extinct. The scourge prevails at the seat of war in Bulgaria and Asia Minor, and has also appeared at St. Petersburg.

TENACITY OF ANIMAL LIFE.—An extraordinary instance of the tenacity

of animal life has occurred at Flintstow farm, near Pembroke, in the occupation of Mr. George Lewis. Sixteen days ago a pig was missed from the farmyard, and though every search, far and wide, was made for it, it could not be found, and it was concluded that it had been stolen. However, on Friday, some masons who were executing some repairs at a brick-kiln on Mr. Lewis's farm, discovered in it the lost pig, which had fallen into the kiln and was unable to extricate itself. During the sixteen days the pig had no means of obtaining sustenance of any kind. When rescued from its imprisonment it was able to eat, and did not seem at all weak, or in a very bad condition, considering the time it had been deprived of food.

Correspondence, etc.

[We publish the following correspondence, owing to the great interest and attention the subject at present commands; as well as to testify to the fact that Comparative Pathology is likely to receive a far larger share of notice than it has hitherto done in this country. For years we have laboured earnestly and incessantly in this direction—with what success the medical and public papers now show. We value this testimony most highly, and also that of the Regius Professor of Medicine in the University of Oxford (Dr. Acland), whose efforts to found a Chair of General and Comparative Pathology in that seat of learning must receive our hearty good wishes for their success. We allude to the public acknowledgment of our services on behalf of veterinary science and general pathology in no vain or egotistical spirit, but merely to point out that we believe we have at length fairly succeeded in overcoming the almost insuperable obstacles which stood in the way of obtaining a recognition of the claims of our department of medicine, and in raising it from a very degraded position somewhat nearer to the point which it must eventually occupy. Twelve years ago our letters on the Cattle Plague were denied insertion in the *Times*, and veterinary surgeons were designated as "ignorant and barbarous." Our improved status to-day must be a cause for sincere congratulation, and an incentive to continued efforts.]

RABIES AND HYDROPHOBIA.

To the Editor of "The Times."

SIR,—I have read with much interest the correspondence on Hydrophobia in your columns, and also the leading article on this subject in *The Times* of October 31st. Perhaps there is no malady which at present attracts more attention from the general public, nor one which is invested with more dread, than the disease in question. Much of the mystery and fear which surround it is due to popular ignorance of it; and even among those who ought to know better, this terror and want of information are, unhappily, very manifest. Some years ago I, in *The Times* and elsewhere, pointed out that the so-called "Hydrophobia" was on the increase in England, and I ventured to prognosticate that it would largely increase unless measures were devised to check it. I was able to do so merely from the knowledge that this disease is maintained and diffused like other contagious or inoculable maladies. Since my earliest letters and writings appeared, nothing has been done to limit or suppress the scourge. Consequently, an outbreak which commenced in Lancashire in 1869 has been allowed to extend itself, until its effects have been noted with terror in the North of Scotland and in North Devon, where, until recently, it had been unknown to the present generation; and in London, in Lancashire, and in Yorkshire a panic almost exists because of its

prevalence. Much of the dangerous superstition and ignorance prevailing with regard to Rabies is due to the unpardonable neglect of comparative pathology in this country. Those who have carefully studied this malady will readily acknowledge that we know more of its nature, of its symptoms, and of the means by which it may be prevented, than we do of some special human disorders which every year claim a far larger number of victims. Few maladies to which animals are liable have been more closely studied by those whose special province it is to minister to the diseases of the lower creatures, than has this disease. And if the results of this study could be made available, there would not be much occasion for panic, nor apology needed for the very confused and even absurd notions entertained with regard to Rabies by some of those who have confined their observations to the human species. In the first place, those who have had the opportunity of witnessing the disease as it manifests itself in animals and man, will readily grant that it is specifically distinct from Tetanus; in fact, it is as distinct, pathologically, as are Tetanus and Smallpox in man. Tetanus arising from wounds is not transmissible, and its symptoms are unmistakable and definite. Rabies is a transmissible disease, and can be produced, experimentally, by inoculation. When transmitted by inoculation, its manifestations, either in man or beast, are so marked and peculiar, that the veriest tyro in medicine, human or comparative, should not mistake it. The symptoms are as different as those of two very dissimilar diseases can be. To assert that the malady is, or can be, of mental origin, is as much as to maintain that Smallpox is an emotional disease. Very many more animals die of Rabies every year than human beings, and this after being inoculated for several weeks. What has mental anxiety or emotional influence to do with its production in the case of horses, dogs, cattle, sheep, pigs, and even fowls? And what about Hydrophobia manifesting itself in young children weeks or months after inoculation? The real fact is, that the disease is specifically distinct from all others, has no relation whatever to Tetanus, and cannot be developed by fear, despondency, or any other emotional influence, but is produced by accidental inoculation, and may be reproduced to any extent by experimental inoculation in animals, which are not conscious that they are to have been inoculated. All this knowledge is already to hand, and for years I have insisted upon its being utilized in devising preventive or suppressive measures; but in vain, as the present panic now testifies.

The latency of the malady is certainly indefinite, and sometimes very protracted; but it is not exceptional in this respect, and some other human and animal disorders are as eccentric.

I cannot see that further experimental investigations into the pathology of Rabies would aid us in suppressing it. We know perfectly well upon what its continuance and extension depend, but we do not utilize this knowledge in the slightest degree. There are certainly some obscure points with regard to its pathology which scientists are endeavouring to unravel, but they have no relation whatever to sanitary police measures, and if elucidated to-morrow would have no effect in checking the occurrence of the dread disorder.

So far as curative measures are concerned, those who know most about the malady will probably have least faith in the thousands of remedies which have been proposed, as all have failed. But we dare not despair of a remedy, and certainly curare is well worthy of an extensive trial. In July, 1876, I published in the *Veterinary Journal*, of which I am editor, the account of Dr. Offenburg's successful case alluded to in your leading article of October 31. Another instance in which the same potent drug appears to have also acted beneficially is recorded in the *Veterinary Journal* for January of this year. Dr. Watson, surgeon to the Jersey City Charity, New York, successfully

treated a case of Rabies in man by the administration of woorara or curare, and strychnine. After what one knows of the failures of reputed remedies for the cure of Rabies, it would be folly to assert that in curare we have found an agent which may, if not in all, at least in some cases, prove efficacious, until many recoveries through its employment are recorded. Yet, from the two instances in which its use has been attended with benefit, and from the well-known physiological action of the drug, there is every reason to recommend its being fairly tried in the attempt to cure what, it must be confessed, is still an incurable and most painful disease.

Unfortunately, from the absence of sanitary or preventive measures—which, after all, are the wisest and best—there will be ample opportunity to give curare of any other supposed remedy a full and decisive test.

I have the honour to be, sir, yours respectfully,

GEORGE FLEMING,
Veterinary Surgeon, 2nd Life Guards.

Regent's Park Barracks.

COMPARATIVE PATHOLOGY.

To the Editor of "The Times."

SIR,—In *The Times* of Saturday last, your correspondent, Mr. Fleming, in an interesting letter, complains of the too scant study of Comparative Pathology in Great Britain. It is not for me to dispute this allegation; nor am I quite sure, looking at the papers in the *Veterinary Journal*, and those published by the Royal Agricultural Society and elsewhere, *but* that I should admit the charge as fully as he makes it. That there is yet room for progress in this, as in every other department of biology, no one can doubt. It may, therefore, interest your readers, as well as your correspondent, to know that the question of founding a Chair of General and Comparative Pathology, under conditions, has long been before the University of Oxford. It has been quite recently pressed in a practical form on the Royal Commissioners, who have been sitting here, and it is to be hoped the proposal may be successful. It is hardly possible that veterinarians would mistake the suggestion for one to found a Veterinary Chair, which would be far too limited in its scope. But, lest that should happen, it may be added that it has been thought desirable not to forget that, in completing arrangements for the scientific study of Human and Comparative Biology, the study of the general relation between the diseases of animals and those of man—General and Comparative Pathology—could not be omitted. The decay and death of animals are as much a part of their natural history as their birth and their growth. The mass of knowledge which is accumulating as to the pathological states of animals lower than man is too well known to require observation. The foundation of a purely scientific chair in this place for promoting inquiries and co-ordinating results in this direction, could not but secure great practical good. Nor are the men wanting who can grapple with so vast a question, and fill the office with honour and advantage to the world. Apologizing for the length of this letter,

I am, sir, your obedient servant,

HENRY W. ACLAND,
Regius Professor of Medicine.

Oxford.

To G. Fleming, Esq.

DEAR SIR,—You may, by chance, see a letter from me in to-day's *Times*. If not, I venture to ask your perusal of it. I hope to further the object of

your letter, and indeed of your long continued labours. An unfortunate *but** has been put in the seventh line of the letter, giving the CONTRARY sense to what I intended, which was to acknowledge the labours of your Journal, and of the Royal Agricultural Society's Journal.

I am, dear sir, yours faithfully,

Oxford, *Nov.* 8, 1877. H. W. ACLAND.

ANOTHER APPEAL FROM THE ARMY.

To the Editor of the VETERINARY JOURNAL.

SIR,—More than five years ago we were informed by the late Principal Veterinary Surgeon that a new warrant was before the authorities, and that it was anticipated that it would be promulgated without much more delay. Every year—almost every month—we are told that the pay and position of army veterinary surgeons is receiving the serious consideration of the authorities; yet here we are, in the same state of suspense, in the year of grace 1877. Has it ever struck the army veterinary surgeons as somewhat strange, the rapidity with which a royal warrant for the members of the sister profession in the service is matured? Not very long ago a new warrant for the medical profession was issued. It did not answer the purposes for which it was intended; and now we find, or are told, that another scheme has been approved of.

I do not introduce the subject in any spirit of jealousy. On the contrary, I think we must all feel pleased at finding the claims of the medical officers of the army attracting due attention. My object in alluding to the matter is to point out the carelessness and indifference with which we, as a body, are treated. Many unjustly censure the head of the Department for this painful state of affairs, but we should not forget that he is powerless to act, and can only represent our grievances, and propose measures to be acted upon by the Secretary of State.

What can be more disheartening than Mr. Hardy's reply to Captain Home in the House of Commons on July 2nd? It was an easy way of evading a direct answer to the question. Let me recall the reply that was given to a similar question about twelve months ago. At that time we were told that as soon as the actuaries had completed their duties in connection with the great scheme of army retirement, Mr. Hardy hoped to place the matter of the veterinary surgeons in their hands. Now, we can all see how far Mr. Hardy has kept his promise. Six months hence perhaps Mr. Hardy will tell us that many more new schemes are under consideration.

It is needless to occupy your valuable space by recapitulating grievances. These subjects are worn threadbare, and it only gives rise to discontent and heartburnings to recall them. It remained for the August number of the *Journal*, however, to show the majority of us what an exalted (?) position we hold in the eyes of our gracious Queen. "While all his brother officers, with whom he associates at mess and everywhere else, may be presented at court, the army veterinary surgeon—even the head of the Veterinary Department—is denied this privilege." Really, the temptations are great to write strongly; but where is the good to come from? Certainly the inducements held out to young gentlemen to come forward and fill the fifteen vacancies that exist at present are very great! Those who enter the Department hereafter will have little to complain of, as they can scarcely accept their position through igno-

* We have printed it in italics, in Professor Acland's letter to the *Times* on "Comparative Pathology."

rance of the many galling slights they are destined to suffer. This has not been the case with the majority of men at present in the Department: indeed, I may add, of all—for from whence was any information as to our social position, etc., to come? We possess a commission, yet we are unworthy of being presented at court! The members of the Department—many of the senior members—have seen much active service in the field, yet none of them have been deemed worthy of special favour. The members of the sister profession are appointed physicians and surgeons to the Queen: why cannot some similar honour be created in connection with the royal stud for deserving veterinary surgeons, both in the army and in civil life? There is not a member of the Department the recipient of a good service reward, or any other mark of royal favour. Can this state of things last? or shall we always have to submit tamely to the will and pleasure of the Secretary of State? The remedy is not in the hands of the army veterinary surgeons: they unfortunately have, to use a vulgarism, "made their beds and must lie on them." The remedy lies in the hands of the parents and guardians of the young aspirants to veterinary honours, and of those who are yet free to make a name and fortune outside the hallowed domain of an army career.

Probably there are many army veterinary surgeons who would gladly rest contented, were they only to receive the boon of as much pay as would enable them to live decently. Had I a brother desirous of entering the Veterinary Department of the army, I would rather see him enter the ranks as a private soldier than commit such an error.

A very serious, and, to my mind, a very just charge, has been laid at the door of the teachers in our various veterinary schools. It has been truly said that these gentlemen, knowing the disadvantages which the army veterinary surgeons labour under, have never raised their voice to warn young men against adopting the Service as their home. Had they done so, we should long ere this have had ample attention bestowed on our claims. Our grievances would have been immediately removed when it was found that the public were not ignorant of the pay and position of the army veterinary surgeon. Let us only pause and ascertain what followed when the teachers of the various medical schools took up the cause of the army medical officers. The examinations were held, but the candidates fell far short of the usual numbers,—in fact, there were fewer candidates than there were vacancies.

But why, in the name of common sense, should any young fellow pine after an army career? What advantages does it offer that are not within his reach, if he labours for them, in private life? The army veterinary surgeon is a sort of bird of passage: he is in the north of Scotland or Ireland to-day, and in six weeks hence you may find him at Peshawur, in the north of India. The civil practitioner settles down wherever he pleases; he forms his own circle of friends, and he has before him a wide sphere for the cultivation of social and useful qualities. In proof of this, only think of the many honoured names that one may call to mind.

What is the goal for which the army veterinary surgeon is striving? To be a Staff veterinary surgeon. A worthy object; but alas! how few gain that haven of comparative independence! Very few: while how many have to suffer the pangs of disappointed hopes, of ruined fortunes, and of services unacknowledged! This is not an exaggerated picture. If you doubt it, ask some of those officers who entered the Service twenty-two years ago. Compare the position of the army veterinary surgeon of twenty or twenty-two years' service with that of the civil practitioner of the same period. Unless the latter has misspent the best part of his time, he forms, as a rule, a great contrast to his brother in the army.

What a pity it is that young gentlemen about to enter the army, and who

are *determined* to live on their pay, never bestow a thought on the time when the milliners' bills will have to be paid, when sons and daughters will have to be educated, when the daughters will have to be taken to balls and dinner parties! But this is too gloomy a picture, and our young friends will only smile at it. Yet it is a fact, nevertheless, and a serious one too. However, fourteen shillings and sixpence per diem will do wonders, especially in England, where things are so wonderfully cheap!

We have now a gleam of hope that something may be done to improve our position. The fact of fifteen vacancies in so small a department, is indeed ample proof of the bad odour into which it has fallen. We would hasten to warn young gentlemen not to be led astray by vague promises, such as those that have been so often made and as frequently broken; above all, we would advise them not to enter the army till they have a positive guarantee that their position as veterinary surgeons will be made much better than it is at the present time; and that guarantee must, we think, take the shape and form of a royal warrant for the "Veterinary Department of our Army."

I am, sir, yours obediently,
"MAX."

SPURIOUS TITLES.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I am desirous of knowing whether a graduate of an Edinburgh College has the right of styling himself a "Member of the Royal College of Veterinary Surgeons, *London and Edinburgh*"? Or, on the contrary, being a London graduate, whether he is licensed also to subscribe himself member of R.C.V.S., London and Edinburgh?

This is done, as you know, by some veterinary surgeons; but it looks so absurd to me that a graduate should advertise in that way simply to mislead the unwary public, making them believe he has passed both the London and Scotch schools, whereas he simply holds the diploma of one college. London and Glasgow never go together; then why London and Edinburgh? I am sorry to trouble you with this matter, but it annoys me; and I will be grateful for any information you can give me through the columns of the *Veterinary Journal.*

I am, sir,
Yours most respectfully,
"REBUS."

[We are quite aware that the practice alluded to by our correspondent is somewhat prevalent; but it is not to be commended, as it is incorrect. Only those who have obtained the diploma of the Royal College of Veterinary Surgeons have the legal right to the distinctive affix of M.R.C.V.S. There is no such distinction as M.R.C.V.S.E. or M.R.C.V.S.L., there being only one Royal College of Veterinary Surgeons in the three kingdoms. We have frequently drawn attention to this subject.]

TO CORRESPONDENTS.

J. B. W.—We are certainly of opinion that, in the discussion of scientific and professional subjects, all personal allusions of a malevolent or unfriendly character should be omitted. They are never productive of good, but only too often do harm, and give rise to ill-feeling. They certainly never further the objects of science or the cause of truth; and, to all but perhaps those immediately concerned, they possess no interest whatever. In this direction, we may quote the lines our witty contemporary, *Punch,*

published with reference to a discussion of this kind regarding the "Germ Theory," in which a celebrated professor and a medical man took a large share. The advice is applicable to the remarks of our correspondent :—

"Let bigots write with sneers of spite,
And dogmas argue so ;
Let priests and parsons, differing, fight,
As 'tis their nature to.

But, Sages, you should never let
Such female passions rise ;
Your thinking minds were never made
To bandy taunts unwise.

Let calm through all your questions run,
All your debates be mild ;
Keep your discussions, every one,
By rancour undefiled.

With patience gentle as a lamb,
Your arguments pursue ;
Call not each other's theories 'flam,'
But prove the sounder view.

Look up to Truth all ends above ;
Seek that, and that alone :
Nor squabble, out of mere self-love,
O'er crotchets of your own."

ERRATA.

In the first page of the last number of the Journal, Mr. Santy's name has been misspelt "Sautry." In page 315, "Ol. Menth. Pip. Aug," should be "Ol. Menth. Pip. *Ang.*"

Communications, Letters, Books, etc., Received.

Communications have been received from S. Knott, Royal Artillery, Shorncliffe ; Professor Axe, London ; J. W. Gadsden, Philadelphia ; R. S. Reynolds, Liverpool ; "Max" ; W. A. Hurrell, Southminster, Essex ; J. Collins, Principal Veterinary Surgeon, London ; R. F. Frost, Royal Artillery, Rangoon ; E. Moore, Albany, New York ; Dr. Acland, Oxford ; F. F. Collins, Principal Veterinary Surgeon, Bengal ; W. S. Adams, R. A., Oossoor, India ; J. Gerrard, Market Deeping, Lincolnshire ; W. H. Coates, London ; W. Broughton, Leeds.

Books : *J. Bendz*, Haandbog i den physiol. Anatomie af de almindeligste danske Hunspattedyr ; *F. Thierry*, Déontologie Vétérinaire ; *C. Ercolani*, Dell' Onychomykosis dell' Uomo e dei Solipedi ; *F. Fossati*, Inspezione Sanitaria degli Animali da Macello ; *D. Hübner*, Der Homöopatische Thierarzt.

Journals : *Repertorium der Thierheilkunde ; Archives Vétérinaires ; Recueil de Méd. Vétérinaire ; Live Stock Journal; Revue Vétérinaire ; Wochenschrift für Thierheilkunde und Viehzucht ; American Veterinary Review* (No. 8) *; La Veterinaria Española ; Lancet ; Medical Examiner ; Sanitary Record ; Medical Times and Gazette ; Der Thierarzt ; Edinburgh Medical Journal ; Practitioner.*

Newspapers : *Aberdeen Daily Free Press ; North British Agriculturist ; Montreal Gazette ; Freeman's Journal ; Australasian ; Illustrated Australasian ; Times ; Daily Telegraph ; Edinburgh Courant ; South Durham Herald ; Pacific Life ; Homeward Mail.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.